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INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONFIGURATION

VOLUME VIII-C - Frequency Analyses of Wake Single Film Data, Hubcaps and Air Ejectors

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APPLIED TECHNOLOGY LABORATORY
U. S. ARMY RESEARCH AND TECHNOLOGY LABORATORIES (AVRADCOM)
Fort Eustis, Va. 23604

APPLIED TECHNOLOGY LABORATORY POSITION STATEMENT

In 1975 a wind tunnel test program was conducted in the Boeing-Vertol 20-foot V/STOL Wind Tunnel on a 1/5th-scale UTTAS model to investigate and find solutions for several aerodynamic problems encountered during the UTTAS flight-testing. Specifically, these tests focused upon (a) the structure of the hub/rotor wake in the vicinity of the empennage, (b) the formulation of the ground vortex and its relation to hub loads and fuselage loads during transition, and (c) the occurrence of vibratory air pressures from the blade passing over the fuselage. Only portions of the above-mentioned wind tunnel test data were reduced and analyzed in addressing the flight-test problems of the UTTAS aircraft.

Under Contract DAAJ02-77-C-0020, Boeing-Vertol completed analyses on the data to understand more completely the aerodynamic interactions that are involved and to formulate instructions for the guidance of designers in these respects. The results of these studies are applicable to all existing and future single-rotor/tail rotor helicopters. The data have been segregated according to aerodynamic interactions and associated phenomena/problem areas. From this body of knowledge, a generalized set of design guidelines meaningful to the single-rotor helicopter design concept formulation were developed and are included in these reports.

Mr. Robert P. Smith of the Aeronautical Technology Division, Aeromechanics Technical Area, served as project engineer for this effort.

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Volume VIII of an eight-volume report
Volume VIII is comprised of three sub-volumes (A thru C)

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Wake	Interaction	Empennage
Flow	Aerodynamic Interaction	Flow Modifier
Frequency	Flow Environment	Powered Model
Spectrum	Configuration	Hub Cap

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This is the third of the three volumes of Volume VIII containing frequency spectrographs of the model helicopter hub/rotor wake velocities derived from the single-film velocity transducer data. This sub-volume deals with the effects of hub caps and air ejector systems on wake velocities.

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PREFACE

The entire report describing the investigation of INTERACTIONAL AERODYNAMICS OF THE SINGLE-ROTOR HELICOPTER CONFIGURATION comprises eight numbered volumes bound as 33 separate documents. The complete list of these documents is as follows:

Volume I, Final Report

Volume II, Harmonic Analyses of Airframe Surface Pressure Data
- A – Runs 7-14, Forward Section
- B – Runs 7-14, Mid Section
- C – Runs 7-14, Aft Section
- D – Runs 15-22, Forward Section
- E – Runs 15-22, Mid Section
- F – Runs 15-22, Aft Section
- G – Runs 23-33, Forward Section
- H – Runs 23-33, Mid Section
- I – Runs 23-33, Aft Section

Volume III, Flow Angle and Velocity Wake Profiles in Low-Frequency Band
- A – Basic Investigations and Hubcap Variations
- B – Air Ejector Systems and Other Devices

Volume IV, One-Third Octave Band Spectrograms of Wake Split-Film Data
- A – Buildup to Baseline
- B – Basic Configuration Wake Explorations
- C – Solid Hubcaps
- D – Open Hubcaps
- E – Air Ejectors
- F – Air Ejectors With Hubcaps; Wings
- G – Fairings and Surface Devices

Volume V, Harmonic Analyses of Hub Wake

Volume VI, One-Third Octave Band Spectrograms of Wake Single Film Data
- A – Buildup to Baseline
- B – Basic Configuration Wake Exploration
- C – Hubcaps and Air Ejectors

Volume VII, Frequency Analyses of Wake Split-Film Data
- A – Buildup to Baseline
- B – Basic Configuration Wake Explorations
- C – Solid Hubcaps

D – Open Hubcaps
E – Air Ejectors
F – Air Ejectors With Hubcaps; Wings
G – Fairings and Surface Devices

Volume VIII, Frequency Analyses of Wake Single Film Data
A – Buildup to Baseline
B – Basic Configuration Wake Exploration
C – Hubcaps and Air Ejectors

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INTRODUCTION

Volume VIII is similar in its format to Volume VII, presenting machine plotted spectrograms. Here the velocity data from the single film outboard transducers is considered in contrast to the split film data of Volume VII which gave flow angle information as well as velocity. The data analysis here was conducted for a limited number of test runs as it is of secondary interest. The runs are the same as for the harmonic analysis of Volume V.

The sub-volumes of Volume VIII display data derived from the following test runs:

Volume VIII-A - 149, 150, 160, 156, 158, 159
Volume VIII-B - 111 -119, 121, 135, 136
Volume VIII-C - 188, 211, 168, 167, 194, 161, 154, 172, 174, 176, 203,205,197

These runs follow the order of the logical arrangement of the Outline of Wake Investigations, Table 1, from which they have been selected. The Table I outline and other material is included for reference and as context to the work of each sub-volume. Table 2, the List of Test Runs, arranges the runs in numerical order and gives pertinent text parameters.

The Index of Rake Positions, Table 3, lists the hot film transducer rake positions in the model coordinate system for each run and its test points. The main feature of Table 3 is the indexing of the test point number to the model water line station and butt line as it varied from run to run. The table groups the runs as they shared the indexing correspondence of point with position. It is emphasized that the runs in a group do not necessarily all share the same number of test points but they do have same correspondence within their respective ranges of test points.

The orientation of rake is shown pictorially in Figures 1 through 6 for the various test runs. Figure 7 presents a scaled drawing of the model with reference to the three-axis coordinate system.

TABLE 1

OUTLINE OF WAKE INVESTIGATIONS

Description	Configuration Code	Run No.	Base-line
Build-up to Baseline			
1. Nacelles removed	$K_{13}+H_1-N$	149	150
2. Blades off, rotating hub	$K_{13}-M+H_{1.0}$	160	156
3. " " , non-rotating hub	$K_{13}-M+H_{1.0}$	158	156
4. " " , hub off	$K_{13}-M-H_{1.0}$	159	156
Basic Configuration			
1. Wake Explorations near Empennage			
(a) 15" Long. + traverse at T/R C.L.	K_{11}	111	---
(b) 9" Vert. + " above T/R "	"	112	---
(c) 2" " " in vortex	"	113	---
(d) 8" " " (continue 112)	"	114	---
(e) 13" " " behind stab.	"	115	---
(f) Lateral traverse, left stab. (One T.P. only)	"	116	---
(g) Same continued	"	117	---
(h) Same continued (One T.P. only)	"	118	---
(i) Lateral traverse right stab.	"	119	---
(j) T/R effect on wake	$K_{11}+T_2^0$	121	115
2. Climb/Descent Studies			
(a) Climb 900 FPM	K_{11}	135	---
(b) Descent 800 FPM	"	136	---
Effect Of Hub Caps			
1. Solid Caps on Canister			
(a) 7.6" diam. 2.17" ht. soft Pitch Arms	$K_{11}-H_{1.0}+H_{1.2}$	137	136
(b) 7.6" diam. 2.17" ht. stiff Pitch Arms	$K_{13}+H_{1.2}$	153	156
(b) 7.6" diam. 2.45" ht. flt. test config.	$K_{13}+H_{1.2.1}+I_T+E_{1.0}$	207	188

TABLE 1 (CONTINUED)

OUTLINE OF WAKE INVESTIGATIONS

Description	Configuration Code*	Run No.	Base-line
Effect of Hub Caps (Continued)			
2. Solid Caps Raised Above Canister			
(a) 7.6" diam. 2.45" ht. 70" depth, .55 gap	$H_{1.2.2}+I_1+E_{1.0}$	208	188
(b) 10.0" diam. 3.25" ht. 1.55" depth, .50" gap	$H_{1.8.1}+I_1+E_{1.0}$	189	188
(c) 10.0" diam. 4.125" ht. 2.05" depth, .875" gap	$H_{1.8.2}+I_1+E_{1.0}$	190	188
(d) Repeat of 189	" " "	210	188
3. Open Caps Without Underbody			
(a) 10.0" diam. 1.25" gap,blades	$H_{1.0.2}+I_1+E_{1.0}$	193	188/166
(b) " " " gap, no blades	$H_{1.0.1}-M$	166	158
(c) " " 2.05" gap,blades	$H_{1.14.1}+I_1+E_{1.0}$	211	188
(d) " " 1.75" gap, no blades	$H_{1.0.1}-M$	165	158
(e) " " 1.87" gap,blades	$H_{1.0.3}+I_1+E_{1.0}$	191	188
(f) 16" diam. 2.00" gap,blades	$H_{1.7.1}$	168	156/167
(g) " " " gap, no blades	$H_{1.7.1}-M$	167	158
(h) " " 4.00" gap,blades	$H_{1.7.2}$	169	156
4. Open Caps with Underbody			
(a) 7.6" diam. 1.25" gap	$H_{1.11.1}+I_2+E_{1.0}$	194	188
(b) " " " "	$H_{1.11.1}+I_2+E_{4.0}$	198	188
(c) " " " " center post	$H_{1.11.2}+I_2$	202	194
(d) 10.0" diam. .5" gap, no blades	$H_{1.5.1}-M$	164	158
(e) " " 1.25" gap, no blades	$H_{1.5.2}-M$	161	158
(f) " " 2.0" gap, no blades	$H_{1.5.4}-M$	163	158
(g) " " 4.0" gap, no blades	$H_{1.5.3}-M$	162	158
(h) " " 1.25" gap	$H_{1.5.2}$	154	156/161

*Basic Code is K13.

TABLE 1 (CONTINUED)

OUTLINE OF WAKE INVESTIGATIONS

Description	Configuration Code*	Run No.	Base-line
5. Miscellaneous Hub Covers			
(a) Hub fairing 16" diam.	$H_{1.3}$	151	150
(b) Wham-O-Frisbee 10" diam.	$H_{1.9.0}+E_{1.2}$	182	181
(c) Fab. glass Frisbee 16" diam.	$H_{1.9.1}+E_{1.2}$	183	181
Effect of Air Ejectors			
1. Basic system no blowing	$H_{1.0}+E_{1.0}$	172	156
2. " " 40 psi	" "	173	156/172
3. " " 150 psi	" "	174	156/172
4. Wide chord shroud 40 psi	$H_{1.0}+E_{2.5.1}$	175	156/173
5. Wide " " 150 psi	" "	176	156/174
6. W/C shroud w. lip 40 psi	$H_{1.0}+E_{3.5.2}$	184	156/173
7. Same Contoured Parallel 150 psi	$H_{1.0}+E_{3.5.4}$	187	156/174
8. Bifurcated duct 0 psi	$H_{1.0}+E_{5.0}$	203	156
9. " " 40 psi	" "	204	156/203
10. " " 150 psi	" "	205	156/203
Air Ejectors with Open Hub Caps with Underbodies			
1. 7.6" diam. 1.25" gap, 0 psi	$H_{1.11.1}+I_2+E_{1.0}$	194	188/172
2. " " " " 20 psi	" " "	195	188
3. " " " " 40 psi	" " "	196	188/173
4. " " " " 150 psi	" " "	197	188/174
5. " " " " 0 psi	$H_{1.11.1}+I_2+E_{4.0}$	198	188/194
6. " " " " 40 psi	" " "	199	188/196
7. " " " " 150 psi	" " "	200	188/196
8. Same with center post	$H_{1.11.2}+I_2+E_{4.6}$	201	188/200
9. 10.0" diam. 2.0" gap wide ch'd. shroud (150 psi)	$H_{1.5.4}+E_{2.5.1}$	177	156/176
Effect of Wings and Misc.			
1. Wings			
(a) Nacelle-mounted stub wing	$H_{1.0}+W_{1.0}+E_{1.1}$	178	181
(b) Single slotted flapped wing	$H_{1.0}+W_{3.0}+E_{1.0}$	180	181
(c) Dougle slotted flapped wing	$H_{1.0}+W_{2.0}+E_{1.0}$	179	181
(d) Boom-mounted stub wing	$H_{1.0}+W_{4.0}$	186	156

*Basic Code is K13.

TABLE 1 (CONTINUED)

OUTLINE OF WAKE INVESTIGATIONS

Description	Configuration Code*	Run No.	Base-line
2. Crown Fairings			
(a) Flat top behind shaft	$K_{11}+D_1$	140	138
(b) Round top behind shaft	$K_{11}+D_2$	141	138
(c) Extended flat top fairing	H_1+D_4	170	156
(d) Flat top + 16" cap, 4" gap	$H_{1.7.2}+D_4$	171	170
(e) Forward fairing/nacelle fairing	$P_{1.0}$	152	156
3. Surface Devices			
(a) Vortex generators	$K_{11}+VG_{2.1}$	139	138
(b) Guidevane between nacelles	$K_{11}+FV_1$	142	138
(c) Longitudinal strakes	$H_{1.5.3}+S_4$	155	156
(d) 14% porosity spoiler	$K_{11}+X_1$	143	138

*Basic Code is K13 unless noted otherwise.

TABLE 2. **LIST OF TEST RUNS**
BASIC INVESTIGATIONS OF THE HUB WAKE

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°	h/d	
111	K_{11}/15" Long. wake traverse at TR center line	80	1433/0	8	6.0	-2.0	∞	Off
112	" /9" Vert. wake traverse above TR center line	"	"	"	"	"	"	"
113	" /2" Vert traverse through MR vortex	"	"	"	"	"	"	"
114	" /8" Vert. traverse below TR center line	"	"	"	"	"	"	"
115	" /13" Vert. traverse behind stabilizer	"	"	"	"	"	"	"
116	" /Lateral traverse - left stabilizer	"	"	"	"	"	"	"
117	" /116 continued	"	"	"	"	"	"	"
118	" /116 continued	"	"	"	"	"	"	"
119	" /Lateral traverse - right stabilizer	"	"	"	"	"	"	"
121	$K_{11}+T_2$/Effect of tail rotor flow on wake	"	1433/ 4500	"	"	"	"	On
135	K_{11}/Wake in 900 fpm climb	"	"	"	-6.0	-4.5	"	Off
136	" /Wake in 800 fpm descent	"	"	"	6.0	-2.0	"	"

TABLE 2 (CONTINUED) **LIST OF TEST RUNS**
EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°	h/d	
137	K_{11}-$H_{1.0}$+$H_{1.2}$/Effect of 7.6 inch diam. solid hub cap	80	1433/0	8	6	-3.8	∞	Off
138	K_{11}/Repeat of base run	"	"	"	"	"	"	"
139	K_{11}+$VG_{2.1}$/Effect of vortex generators on aft crown	"	"	"	"	"	"	"
140	K_{11}+D_1/Flat-topped "doghouse" fairing on aft crown	"	"	"	"	"	"	"
141	K_{11}+D_2/Rounded-top fairing	"	"	"	"	"	"	"
142	K_{11}+FV_1/Deflection vane on crown between nacelles	"	"	"	"	"	"	"
143	K_{11}+X_1/Variable porosity spoiler	"	"	"	"	"	"	"
149	K_{13}+H_1-N_1/Effect of nacelles off also add stiff pitch arms (K_{13})	60	1075/0	4.5	"	"	"	"
150	K_{13}+H_1/60 knot baseline	"	"	"	"	"	"	"
151	K_{13}+$H_{1.3}$/16 inch diam. helmet fairing	"	"	"	"	"	"	"
152	K_{13}+$P_{1.0}$/Pylon and intake fairings	80	1433/0	8	"	"	"	"
153	K_{13}+$H_{1.2}$/Repeat 137 with K_{13} pitch arms	"	"	"	"	"	"	"

TABLE 2 (CONTINUED) **LIST OF TEST RUNS**

EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					$\alpha°$	$\psi°$	h/d	
154	$K_{13}+H_{1.5.2}$/10" open hub cap, 7" underbody, 1.25"gap	80	1433/0	8	6	-3.8	∞	Off
155	$K_{13}+H_{1.5.2}+S_4$/Same as 154 except strakes on aft crown	"	"	"	"	"	"	"
156	$K_{13}+H_{1.0}$/Baseline with K_{13},i.e., stiff pitch arms	"	"	"	"	"	"	"
158	$K_{13}-M+H_{1.0}$/Wake studies with blades off, hub not rotating	"	0/0	"	"	"	"	"
159	$K_{13}-M-H_{1.0}$/Wake studies with hub off	"	"	"	"	"	"	"
160	$K_{13}-M+H_{1.0}$/Same as 158 except hub is rotating	"	1433/0	"	"	"	"	"
161	$K_{13}-M+H_{1.5.2}$/Repeat of 154 without blades	"	0/0	"	"	"	"	"
162	$K_{13}-M+H_{1.5.3}$/Same as 161 except 4" gap	"	"	"	"	"	"	"
163	$K_{13}-M+H_{1.5.4}$/Same as 161 except 2" gap	"	"	"	"	"	"	"
164	$K_{13}-M+H_{1.5.1}$/Same as 161 except 0.5" gap	"	"	"	"	"	"	"
165	$K_{13}-M+H_{1.0.1}$/ 10" open hub cap,no underbody,same cap vert.position as Run 154	"	"	"	"	"	"	"
166	$K_{13}-M+H_{1.0.2}$/Same as 165 with cap lowered by 0.5"	"	"	"	"	"	"	"

TABLE 2 (CONTINUED) **LIST OF TEST RUNS**
EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°	h/d	
167	K_{13}-M+$H_{1.7.1}$/16" open cap, no underbody, 2" gap	80	0/0	8	6	-3.8	∞	Off
168	K_{13}+$H_{1.7.1}$/Blades on, same cap config. as 167	"	1433/0	"	"	"	"	"
169	K_{13}+$H_{1.7.2}$/16" open cap, no underbody, 4" gap	"	"	"	"	"	"	"
170	K_{13}+$H_{1.0}$+$D_{4.0}$/Extended flat top fairing on aft crown	"	"	"	"	"	"	"
171	K_{13}+$H_{1.7.2}$+$D_{4.0}$/Same fairing as 170 same cap as 169	"	"	"	"	"	"	"
172	K_{13}+$H_{1.0}$+$E_{1.0}$(0psi)/Basic air ejector zero blowing baseline	"	"	"	"	"	"	"
173	K_{13}+$H_{1.0}$+$E_{1.0}$(40 psi)/Same as 172 with 40 psi supply	"	"	"	"	"	"	"
174	K_{13}+$H_{1.0}$+$E_{1.0}$(150 psi)/Same as 172 with 150 psi supply	"	"	"	"	"	"	"
175	K_{13}+$H_{1.0}$+$E_{2.5.1}$(40 psi)/Ejector with wide chord shroud at 40 psi	"	"	"	"	"	"	"
176	K_{13}+$H_{1.0}$+$E_{2.5.1}$(150 psi)/Same as 174 with 150 psi supply	"	"	"	"	"	"	"
177	K_{13}+$H_{1.5.4}$+$E_{2.5.1}$(150 psi)/Same as 176 with 10" cap like 163	"	"	"	"	"	"	"
178	K_{13}+$H_{1.0}$+$W_{1.0}$+$E_{1.1}$(0 psi)/Nacelle mounted wing	"	"	"	"	"	"	"

TABLE 2 (CONTINUED) **LIST OF TEST RUNS**

EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°	h/d	
179	$K_{13}+H_{1.0}+W_{2.0}+E_{1.0}$ (0 psi)/Double slotted flapped wing	80	1433/0	8	6	-3.8	∞	Off
180	$K_{13}+H_{1.0}+W_{3.0}+E_{1.0}$ (0 psi)/Single slotted flapped wing	"	"	"	"	"	"	"
181	$K_{13}+H_{1.0}+E_{1.2}$ (0 psi)/Baseline with ejector tube moved aft	"	"	"	"	"	"	"
182	$K_{13}+H_{1.9.0}+E_{1.2}$ (0 psi)/Standard 10" frisbee	"	"	"	"	"	"	"
183	$K_{13}+H_{1.9.1}+E_{1.2}$ (0 psi)/16" fabricated frisbee	"	"	"	"	"	"	"
184	$K_{13}+H_{1.0}+E_{3.5.2}$ (40 psi)/Wide chord with lip at 40 psi	"	"	"	"	"	"	"
185	$K_{13}+H_{1.0}+E_{3.5.2}$ (150 psi)/Same as 184 with 150 psi air	"	"	"	"	"	"	"
186	$K_{13}+H_{1.0}+W_{4.0}$/Boom mounted stub wing	"	"	"	"	"	"	"
187	$K_{13}+H_{1.0}+E_{3.5.4}$ (150 psi)/Like 185 with modified shroud	"	"	"	"	"	"	"
188	$K_{13}+H_{1.0}+I_1+E_{1.0}$ (0 psi)/Baseline with I_1 instr. ring	"	"	"	"	"	"	"
189	$K_{13}+H_{1.8.1}+I_1+E_{1.0}$ (0 psi)/Solid cap, 10" diam. 3.25" height	"	"	"	"	"	"	"
190	$K_{13}+H_{1.8.2}+I_1+E_{1.0}$ (0 psi)/Same as 190 except + 4.12" height	"	"	"	"	"	"	"

TABLE 2 (CONTINUED) **LIST OF TEST RUNS**

EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					α°	ψ°	h/d	
191	$K_{13}+H_{1.0.2}+I_1+E_{1.0}$ (0 psi)/10" cap, no underbody, 1.87" gap	80	1433/0	8	6	-3.8	∞	Off
193	$K_{13}+H_{1.0.2}+I_1+E_{1.0}$ (0 psi)/10" cap, no underbody, 1.25" gap	"	"	"	"	"	"	"
194	$K_{13}+H_{1.11.1}+I_2+E_{1.0}$(0 psi)/7.6" cap, underbody, 1.25" gap	"	"	"	"	"	"	"
195	$K_{13}+H_{1.11.1}+I_2+E_{1.0}$(20 psi)/Same as 194 with 20 psi air	"	"	"	"	"	"	"
196	$K_{13}+H_{1.11.1}+I_2+E_{1.0}$(40 psi)/Same as 194 with 40 psi air	"	"	"	"	"	"	"
197	$K_{13}+H_{1.11.1}+I_2+E_{1.0}$(150 psi)/Same as 194 with 150 psi air	"	"	"	"	"	"	"
198	$K_{13}+H_{1.11.1}+I_2+E_{4.0}$ (0 psi)/Same as 194 except blowing tube 2" aft	"	"	"	"	"	"	"
199	$K_{13}+H_{1.11.1}+I_2+E_{4.0}$ (40 psi)/Same as 198 with 40 psi air	"	"	"	"	"	"	"
200	$K_{13}+H_{1.11.1}+I_2+E_{4.0}$ (150 psi)/Same as 198 with 150 psi air	"	"	"	"	"	"	"
201	$K_{13}+H_{1.11.2}+I_2+E_{4.0}$ (150 psi)/Same as 200 except center support cap	"	"	"	"	"	"	"
202	$K_{13}+H_{1.11.2}+I_2$/Baseline with I_2 and no blowing tube	"	"	"	"	"	"	"
203	$K_{13}+H_{1.0}+E_{5.0}$(0 psi)/Bifurcated air duct baseline	"	"	"	"	"	"	"

TABLE 2 (CONTINUED) LIST OF TEST RUNS
EVALUATION OF WAKE-ALTERING DEVICES

RUN NO.	CONFIGURATION/CONDITION	V_{TUN} KNOTS	RPM MR/TR	DISK LDG. psf	MODEL ANGLES		MR HT.	TAIL ROTOR
					$\alpha°$	$\psi°$	h/d	
204	$K_{13}+H_{1.0}+E_{5.0}$ (150 psi)/Bifurcated duct with 150 psi air	80	1433/0	8	6	-3.8	∞	Off
205	$K_{13}+H_{1.0}+E_{5.0}$ (40 psi)/Same as 204 with 40 psi air	"	"	"	"	"	"	"
207	$K_{13}+H_{1.2.1}+I_1+E_{1.0}$ (0 psi)/7.6" solid cap, no gap	"	"	"	"	"	"	"
208	$K_{13}+H_{1.2.2}+I_1+E_{1.0}$ (0 psi)/Same as 207 except 0.55" gap	"	"	"	"	"	"	"
210	$K_{13}+H_{1.15.1}+I_1+E_{1.0}$ (0 psi)/Repeat of 189	"	"	"	"	"	"	"
211	$K_{13}+H_{1.14.1}+I_1+E_{1.0}$ (0 psi)/Like 189 and 210 except cap is open	"	"	"	"	"	"	"

TABLE 3

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
111	20	53.5	103.1	-7.25	1
	21	"	"	"	
	22	"	105.0	"	
	24	"	107.0	"	
	26	"	109.0	"	
	28	"	111.0	"	
	30	"	112.9	"	
	32	"	114.9	"	
	34	"	116.9	"	
	36	"	118.9	"	
112	2	48.9	107.3	-7.25	1
	4	50.8	"	"	
	6	52.7	103.3	"	
	8	54.5	"	"	
	10	56.2	"	"	
	12	57.2	"	"	
113	2	51.7	103.3	-3.25	1
	4	52.3	"	"	
	6	52.8	"	"	
	8	53.3	"	"	
	10	53.9	"	"	
	11	53.3	"	"	
114	2	44.5	103.0	-3.25	1
	4	46.4	"	"	
	6	48.2	"	"	
	8	50.0	"	"	
	10	51.9	"	"	
115	3	52.9	124.7	-3.25	1
	4	52.0	"	"	
	6	50.0	"	"	
	9	48.0	"	"	
	10	46.0	"	"	
	12	44.1	"	"	
	14	42.1	"	"	
	16	53.0	"	"	
	18	54.0	"	"	
	20	55.0	"	"	

TABLE 3 (CONTINUED)

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
116	7	36.9	100.5	-17.5	1
117	2	37.6	100.5	-16.0	1
	4	"	"	-14.0	
	6	37.3	99.6	-12.0	
	8	"	"	-10.0	
	10	"	"	- 8.0	
118	2	37.6	100.5	- 6.0	1
119	2	37.3	99.6	+ 6.0	1
	5	"	"	8	
	8	"	"	10	
	9	"	"	"	
	14	"	"	14	
	16	"	"	16	
	20	51.5	102.5	17.5	
	25	52.3	101.7	-17.5	
121	3	62.9	129.0	+ 5.7	2
	4	53.5	"	"	
	6	50.1	"	"	
	8	46.0	"	"	
	10	42.1	"	"	
135	2	56.9	106.3	- 5.7	3
	4	54.5	"	"	
	6	52.5	"	"	
	8	50.5	"	"	
	10	48.5	"	"	
	12	46.5	"	"	
	14	44.5	"	"	
136	2	56.5	104.0	- 8.0	4
	4	54.5	"	"	
	6	52.5	"	"	
	8	50.6	"	"	
	10	48.5	"	"	
	12	46.5	"	"	
	14	44.5	"	"	
	17	37.1	"	"	
	18	39.0	"	"	
	19	41.0	"	"	

TABLE 3 (CONTINUED)

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
137	3	38.7	98.4	- 8.0	5
	5	39.9	"	"	
	7	42.0	100.5	"	
	9	44.0	"	"	
	11	46.0	103.6	"	
	13	48.0	"	"	
	15	50.0	"	"	
	17	52.0	"	"	
	19	54.0	"	"	
138-41, 143	2	38.8	98.4	- 8.0	5
	3	40.0	"	"	
	4	42.0	100.5	"	
	5	44.0	"	"	
	6	46.0	103.6	"	
	7	48.0	"	"	
	8	50.0	"	"	
	9	52.0	"	"	
	10	54.0	"	"	
142	7	37.8	98.4	- 8.0	5
	8	"	"	"	
	9	40.2	"	"	
	10	42.0	100.5	"	
	11	44.0	"	"	
	12	46.0	103.6	"	
	13	48.0	"	"	
	14	50.0	"	"	
	15	52.0	"	"	
	16	54.0	"	"	
	17	56.8	"	"	

TABLE 3 (CONTINUED)

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
149-151	2	38.8	98.5	- 8.0	5
	3	40.0	"	"	
	4	42.0	100.6	"	
	5	44.0	"	"	
	6	46.0	103.5	"	
	7	48.0	"	"	
	8	50.0	"	"	
	9	52.0	"	"	
	10	54.0	"	"	
152-6, 158	2	42.9	97.9	0.0	6
161-4, 166	3	44.9	"	"	
167, 169-71	4	46.9	100.6	"	
175, 177-9	5	48.9	"	"	
180,182,184	6	50.9	104.6	"	
186-8, 190	7	52.9	"	"	
191,193,194	8	54.9	"	"	
196,198,201	9	56.9	"	"	
204,207,208					
211					
159	1	54.9	104.6	0.0	6
	2	52.9	"	"	
	3	50.7	"	"	
	4	48.6	100.6	"	
	5	46.7	"	"	
160,203	5	42.9	97.9	0.0	6
	6	44.9	"	"	
	7	46.9	100.6	"	
	8	48.9	"	"	
	9	50.9	104.6	"	
	10	52.9	"	"	
	11	54.9	"	"	
165	3	44.9	97.9	0.0	6
	4	42.9	"	"	
	5	46.9	100.6	"	
	6	48.9	"	"	
	7	50.9	104.6	"	
	8	52.9	"	"	

TABLE 3 (CONTINUED)

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
168, 183	4	42.9	97.9	0.0	6
	5	44.9	"	"	
	6	46.9	100.6	"	
	7	48.9	"	"	
	8	50.9	104.6	"	
	9	52.9	"	"	
	10	54.9	"	"	
172	3	42.9	97.9	0.0	6
	4	44.9	"	"	
	6	44.9	"	"	
	7	46.9	100.6	"	
	8	48.9	"	"	
	9	50.9	104.6	"	
	10	52.9	"	"	
	11	54.9	"	"	
173,174,176	1	42.9	97.9	0.0	6
185,195,197	2	44.9	"	"	
199,200,205	3	46.9	100.6	"	
210	4	48.9	"	"	
	5	50.9	104.6	"	
	6	52.9	"	"	
	7	54.9	"	"	
181	2	42.9	97.9	0.0	6
	3	44.9	"	"	
	4	46.9	100.6	"	
	5	48.9	"	"	
	6	50.9	104.6	"	
	7	52.9	"	"	
	9	54.9	"	"	
	10	"	"	"	
	11	"	"	"	
	12	"	"	"	
	13	42.9	97.9	"	

TABLE 3 (CONTINUED)

INDEX TO RAKE POSITIONS

RUN NUMBER	TEST POINT	WATER LINE	MODEL STATION	BUTT LINE	LOCATION FIGURE
189	29	42.9	97.9	0.0	6
	30	44.9	"	"	
	31	46.9	100.6	"	
	32	48.9	"	"	
	33	"	"	"	
	34	50.9	104.6	"	
	35	"	"	"	
	36	48.9	100.6	"	
	37	50.9	104.6	"	
	38	52.9	"	"	
	39	54.9	"	"	
202		43.4	97.9	0.0	6
		44.9	"	"	
	5	46.9	100.6	"	
	6	48.9	"	"	
	7	50.9	104.6	"	

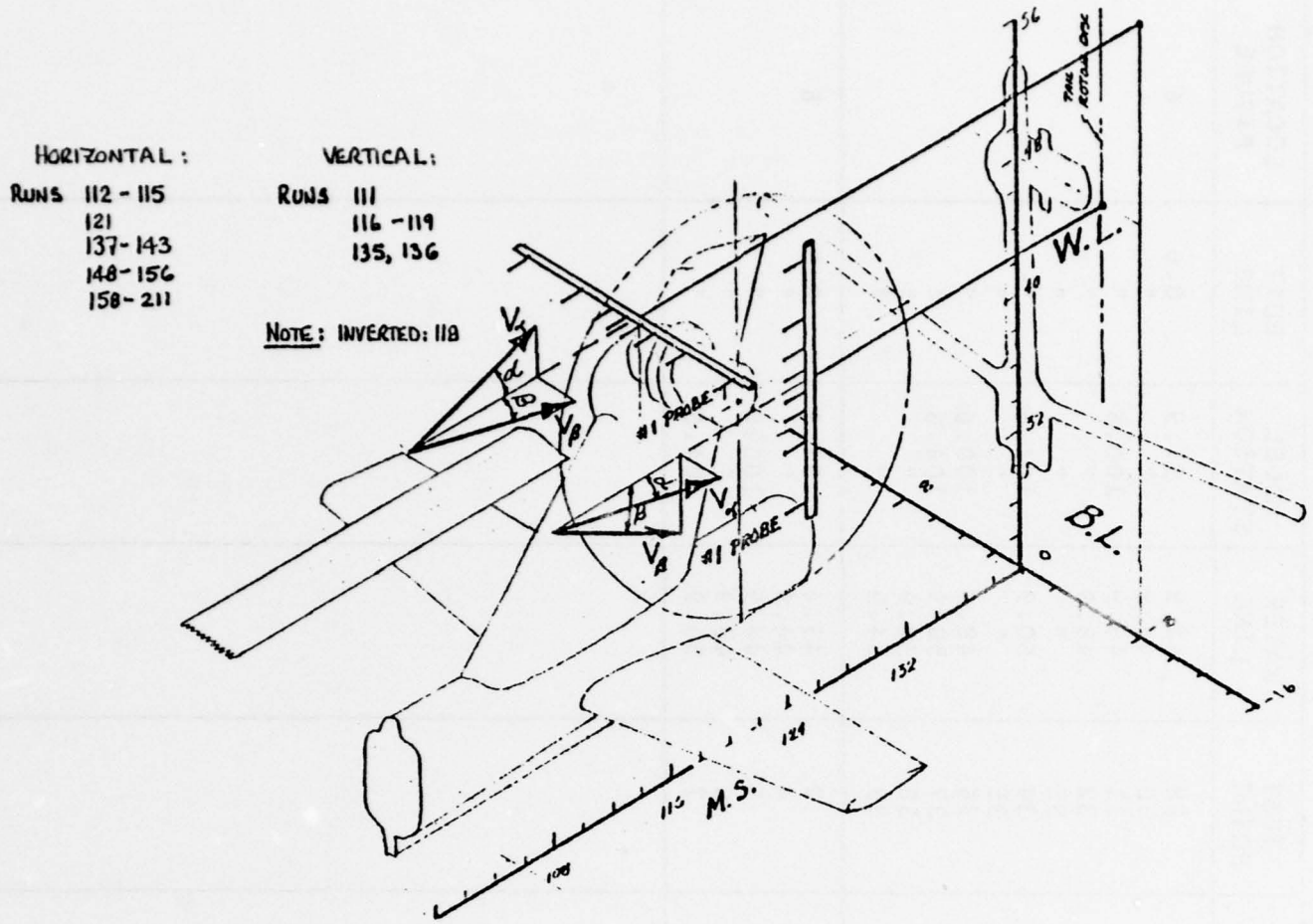


FIGURE 1 - RAKE ORIENTATION DIAGRAM

RUN 121

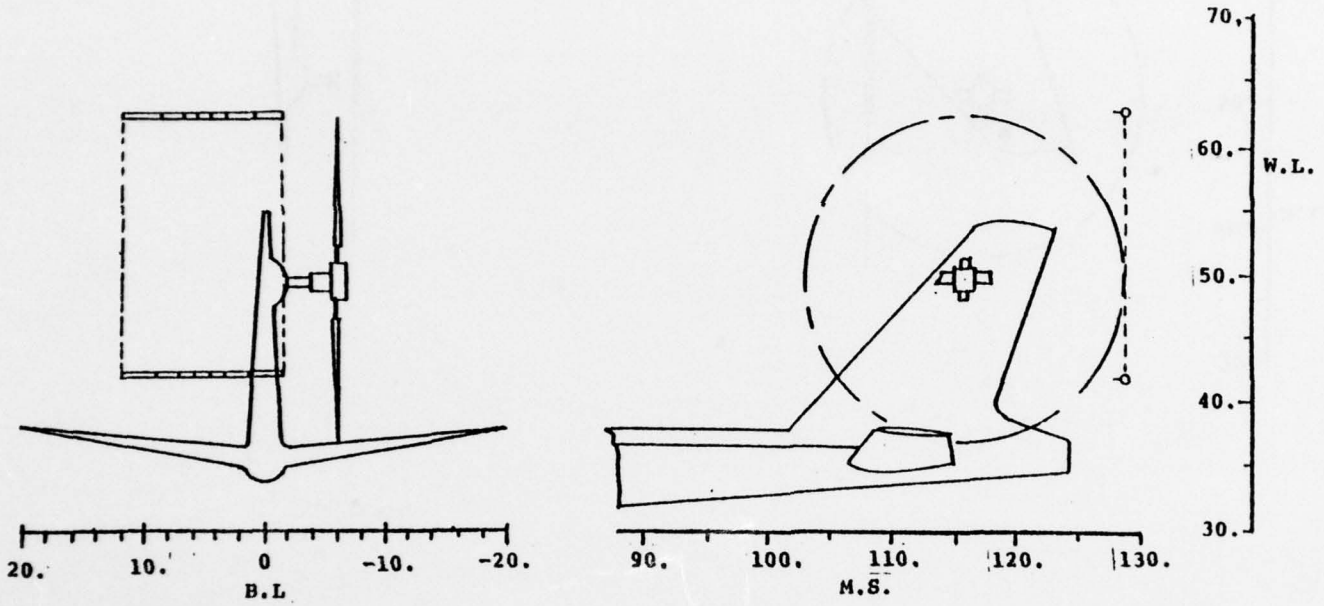


FIGURE 2 -HOT FILM RAKE LOCATIONS

RUN 135

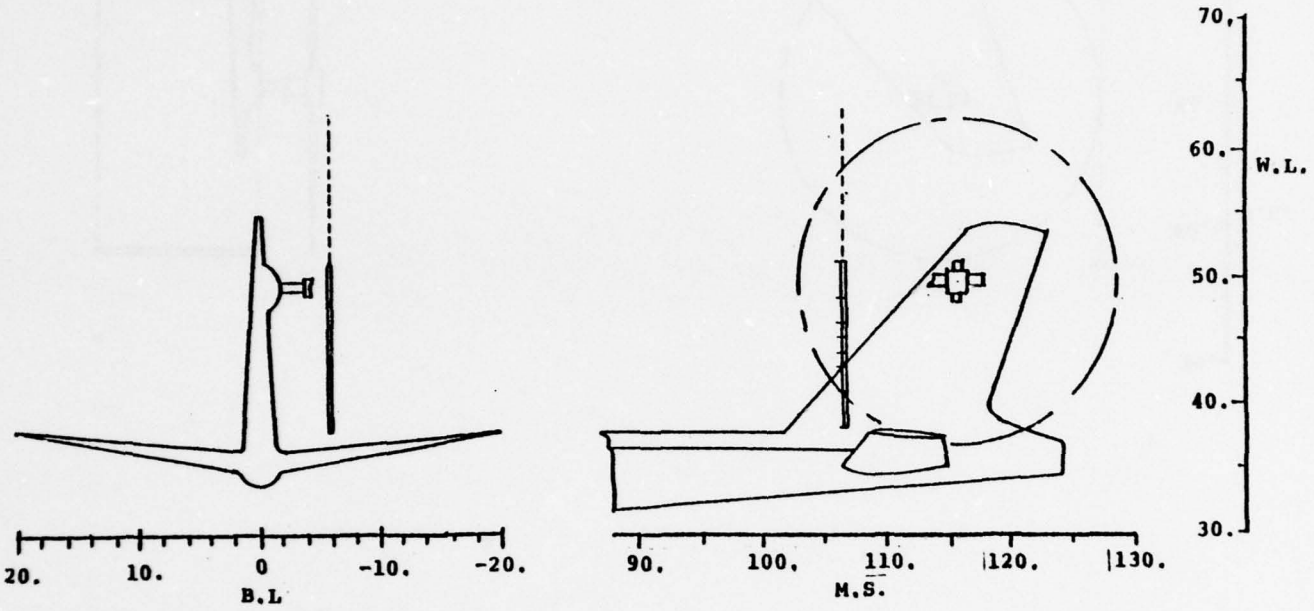


FIGURE 3 -HOT FILM RAKE LOCATIONS

RUN 136

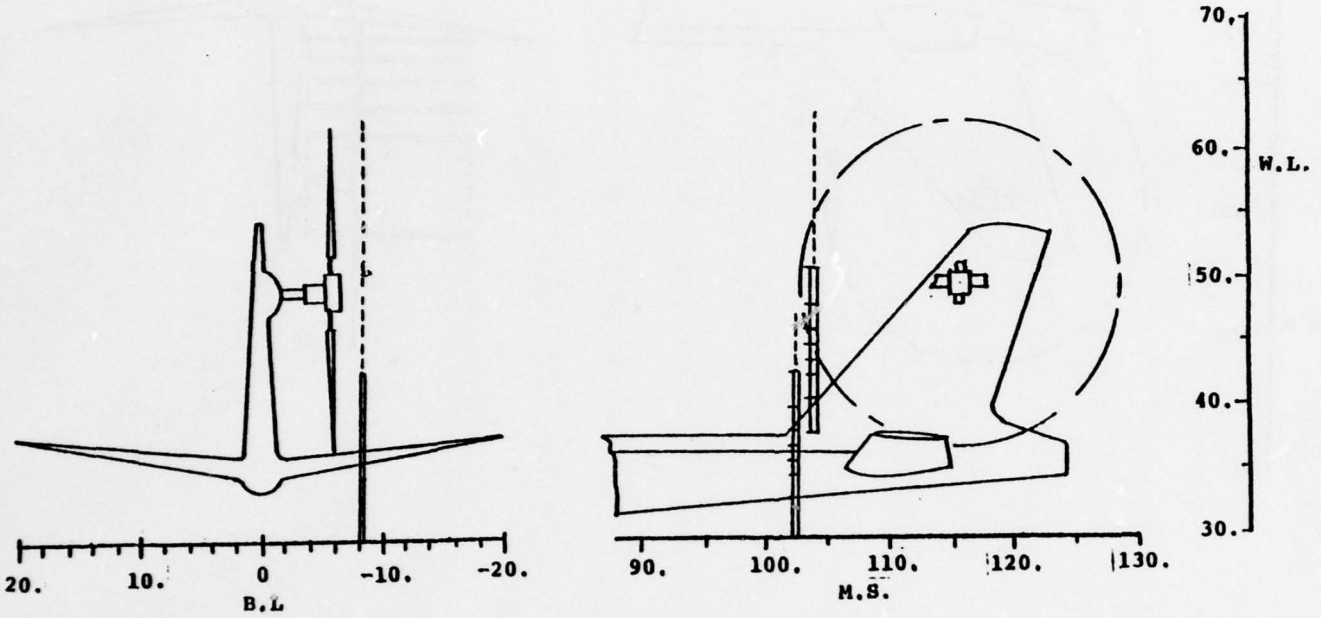


FIGURE 4 -HOT FILM RAKE LOCATIONS

RUN 137, 138, 139, 140, 141, 142,
143, 148, 149, 150, 151

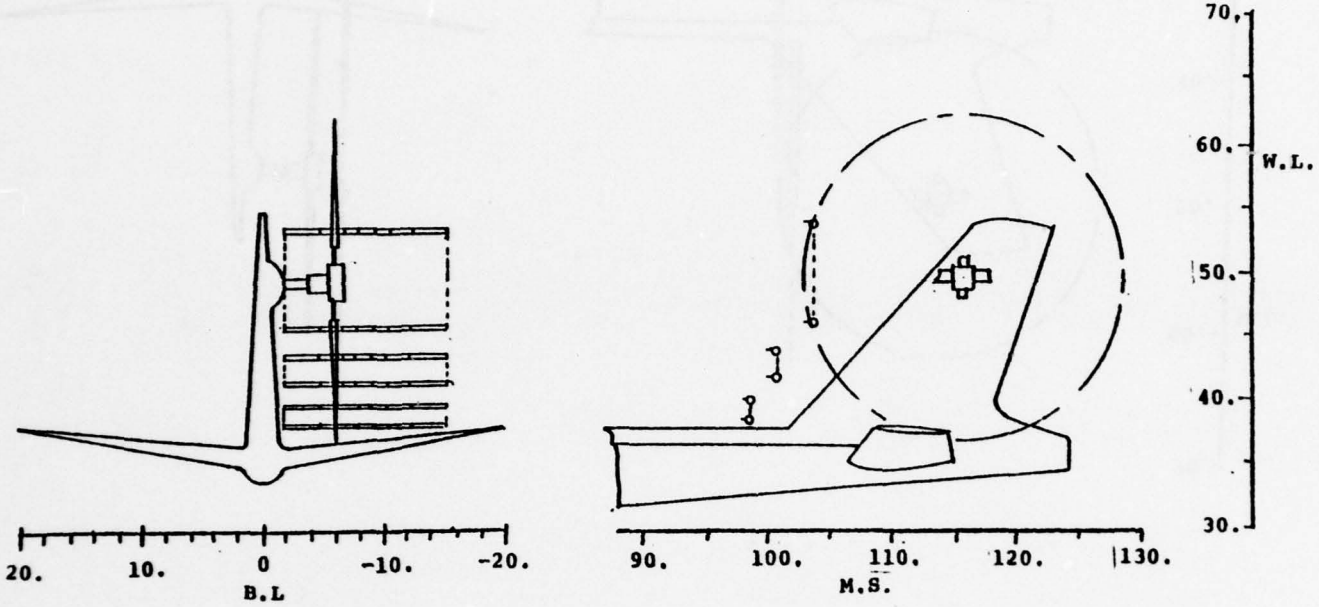


FIGURE 5 -HOT FILM RAKE LOCATIONS

RUN 152-156, 158-211

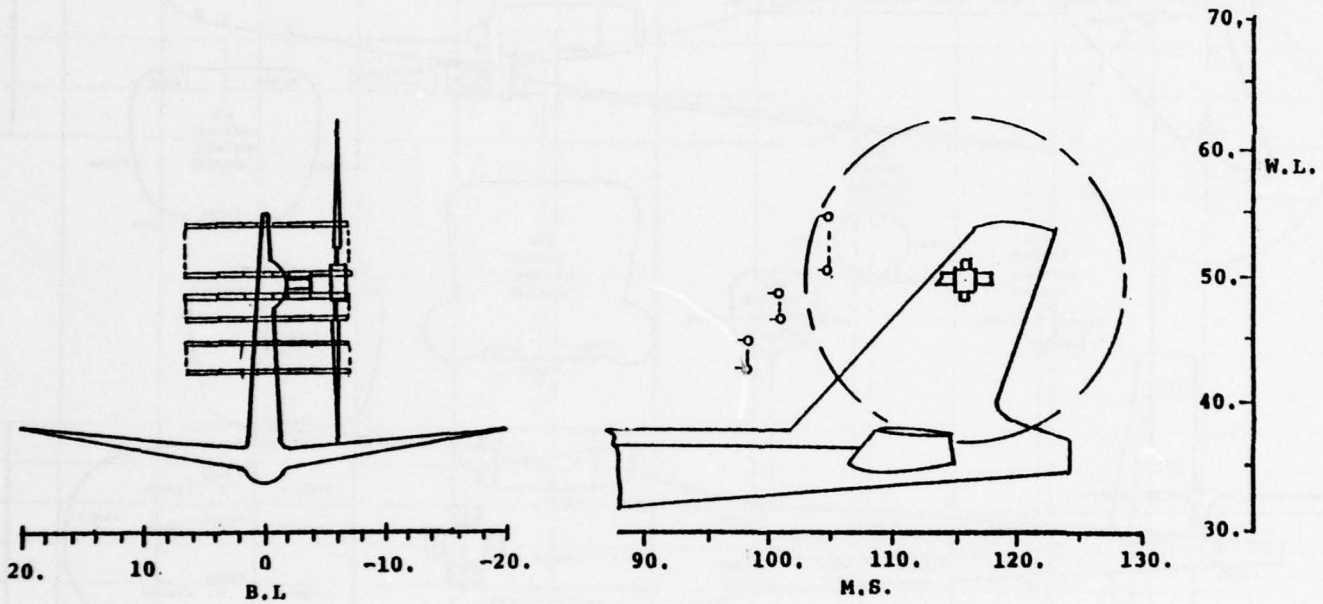


FIGURE 6 -HOT FILM RAKE LOCATIONS

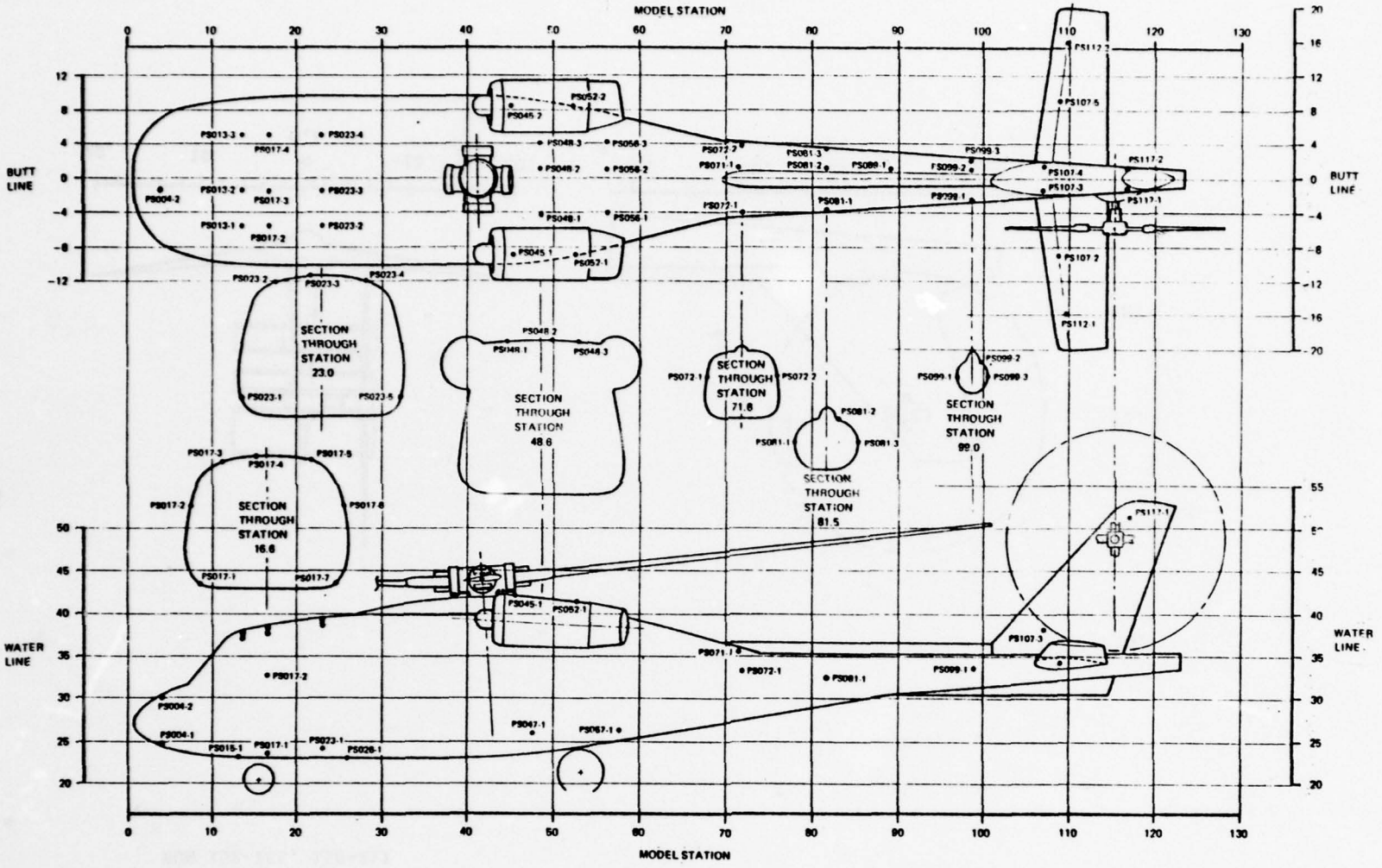
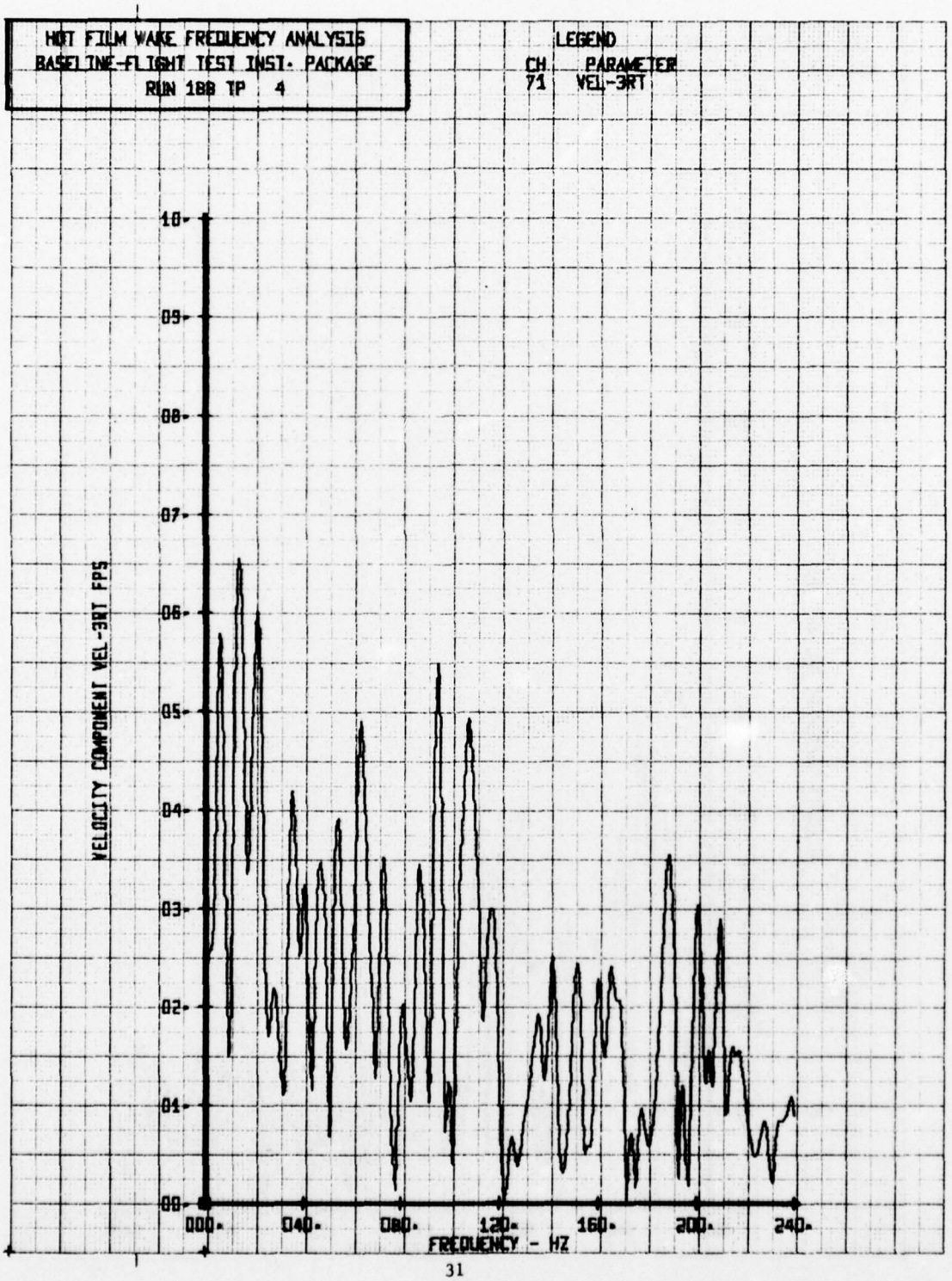
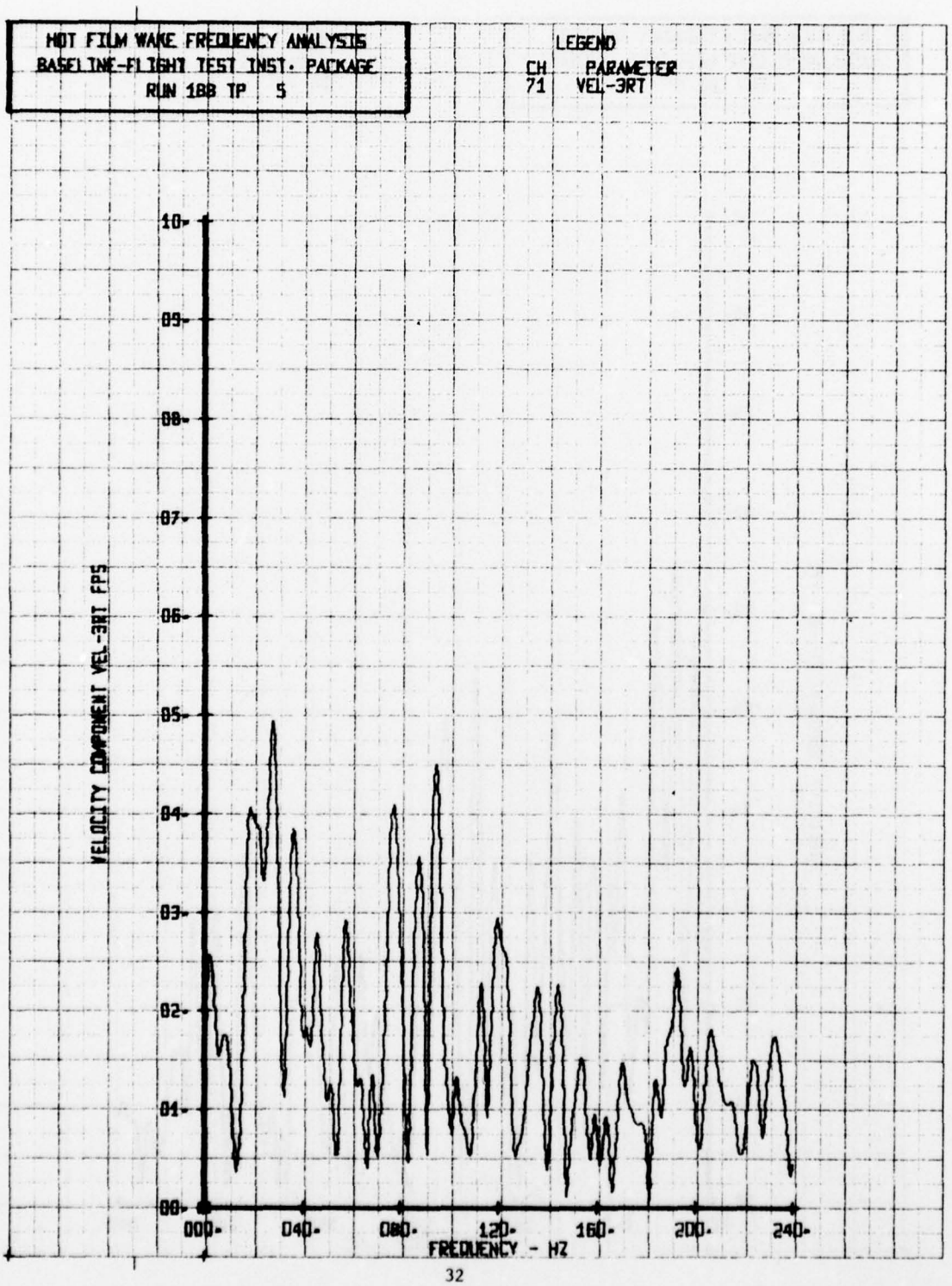
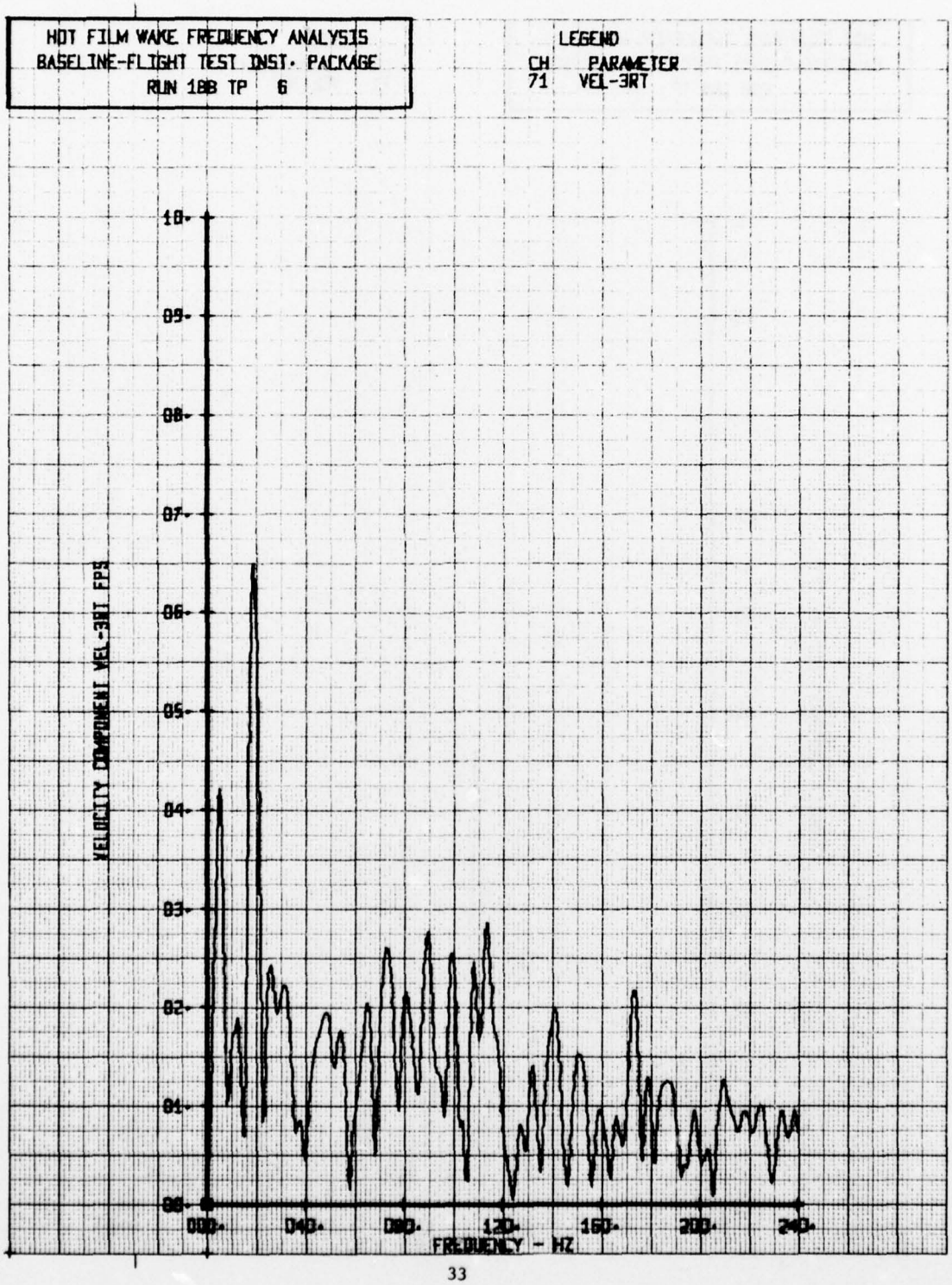
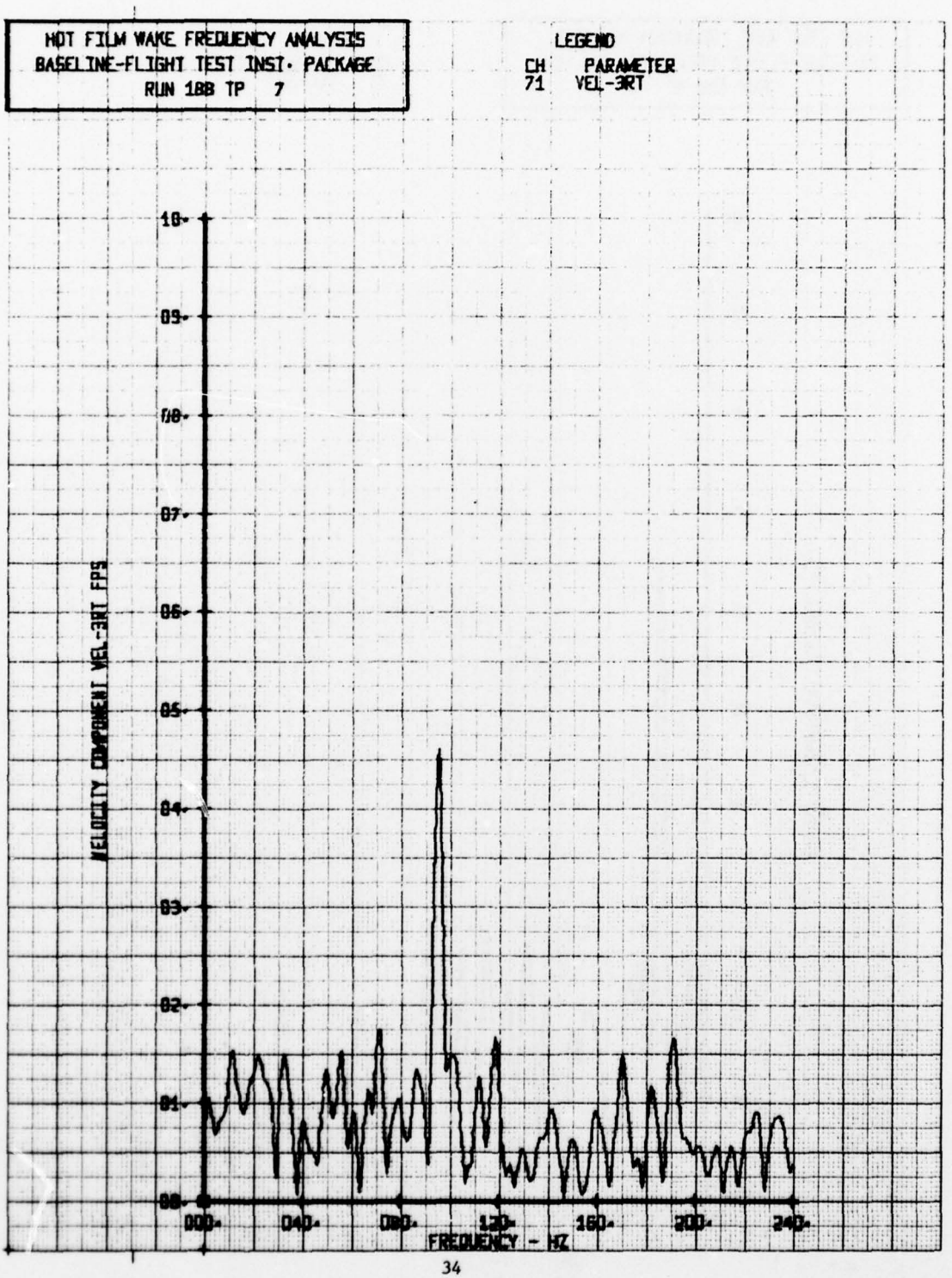


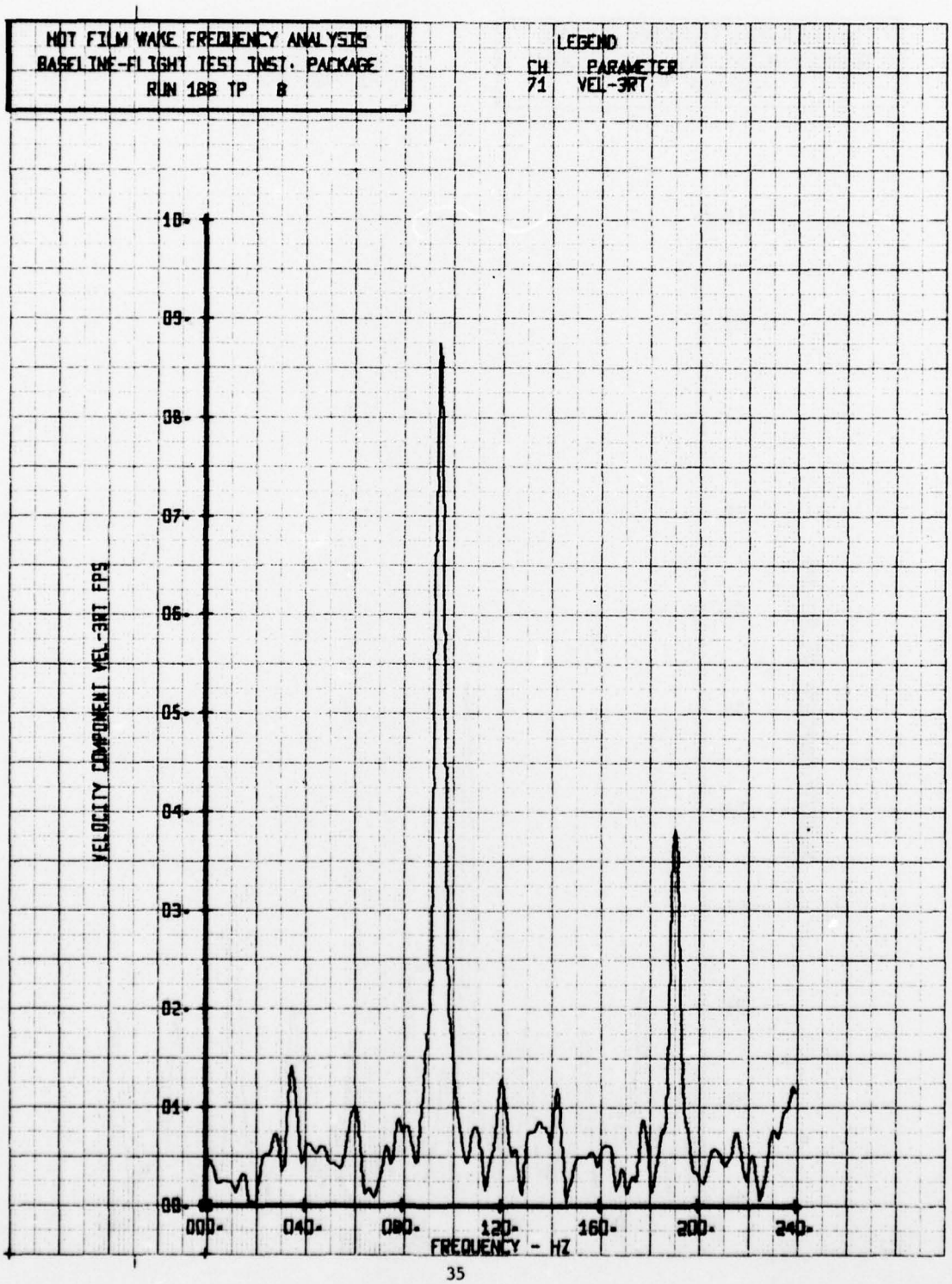
FIGURE 7 -1/4.85 SCALE MODEL GEOMETRY AND SURFACE PRESSURE TRANSDUCER LOCATIONS

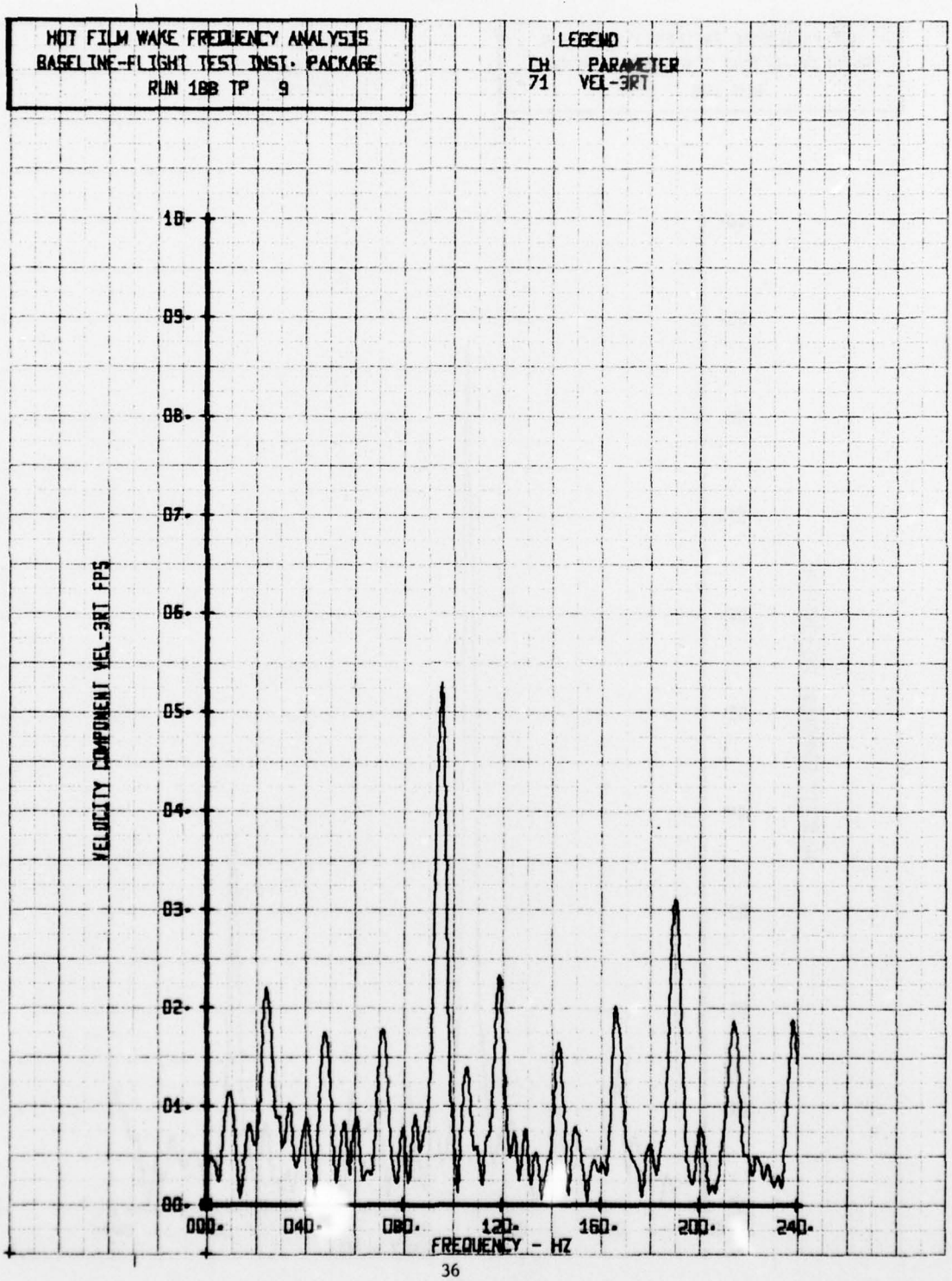

HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 4
LEGEND
CH PARAMETER
71 VEL-3RT
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
VELOCITY COMPONENT VEL-3RT FPS
000.
040.
080.
120.
160.
200.
240.
FREQUENCY - HZ

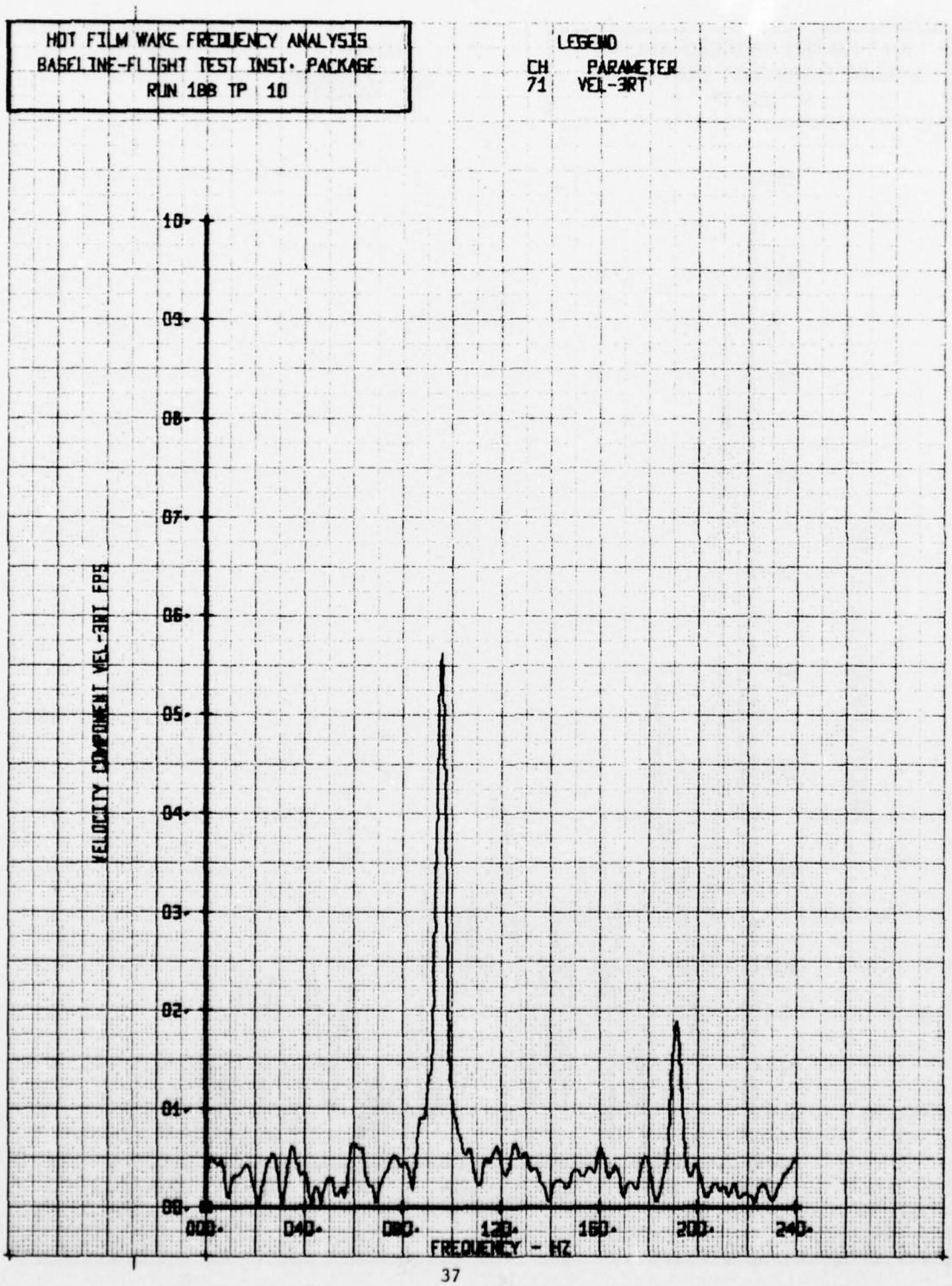

HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 5
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
000.
040.
080.
120.
160.
200.
240.
FREQUENCY - HZ

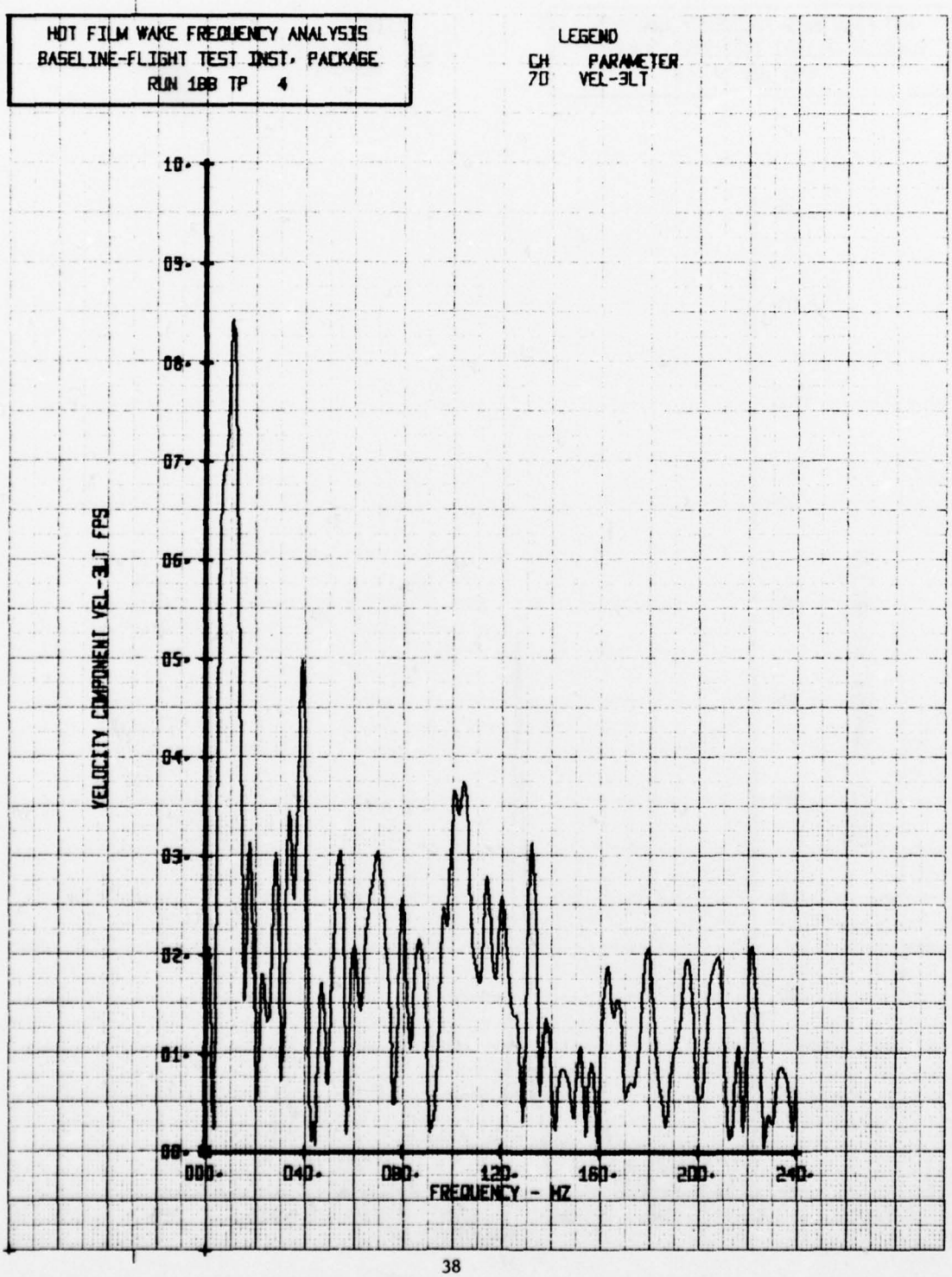

HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 6
LEGEND
CH PARAMETER
71 VEL-3RT
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
VELOCITY COMPONENT VEL-3RT FPS
000.
040.
080.
120.
160.
200.
240.
FREQUENCY - HZ

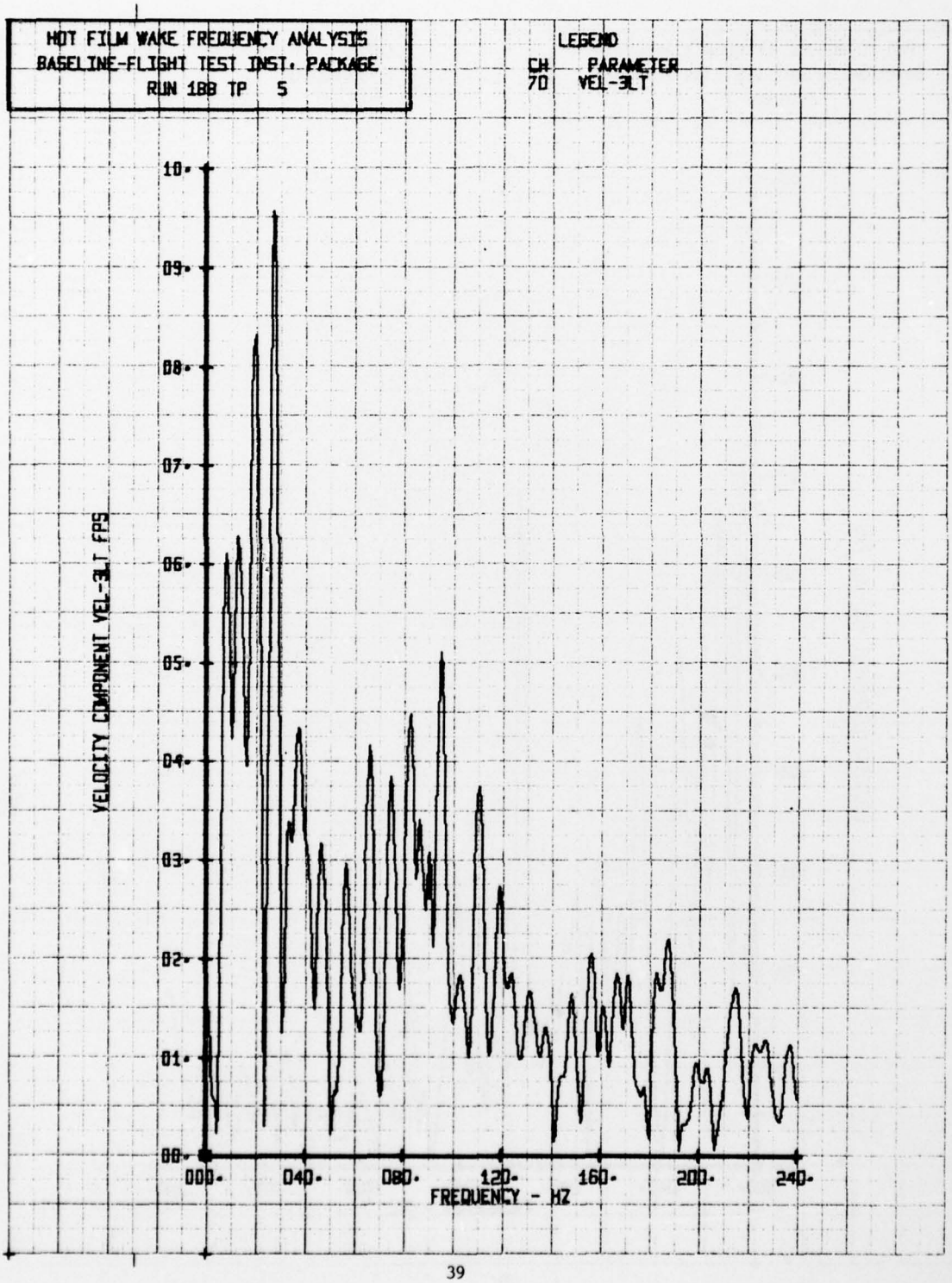

HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 7
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
000.
040.
080.
120.
160.
200.
240.
FREQUENCY - HZ

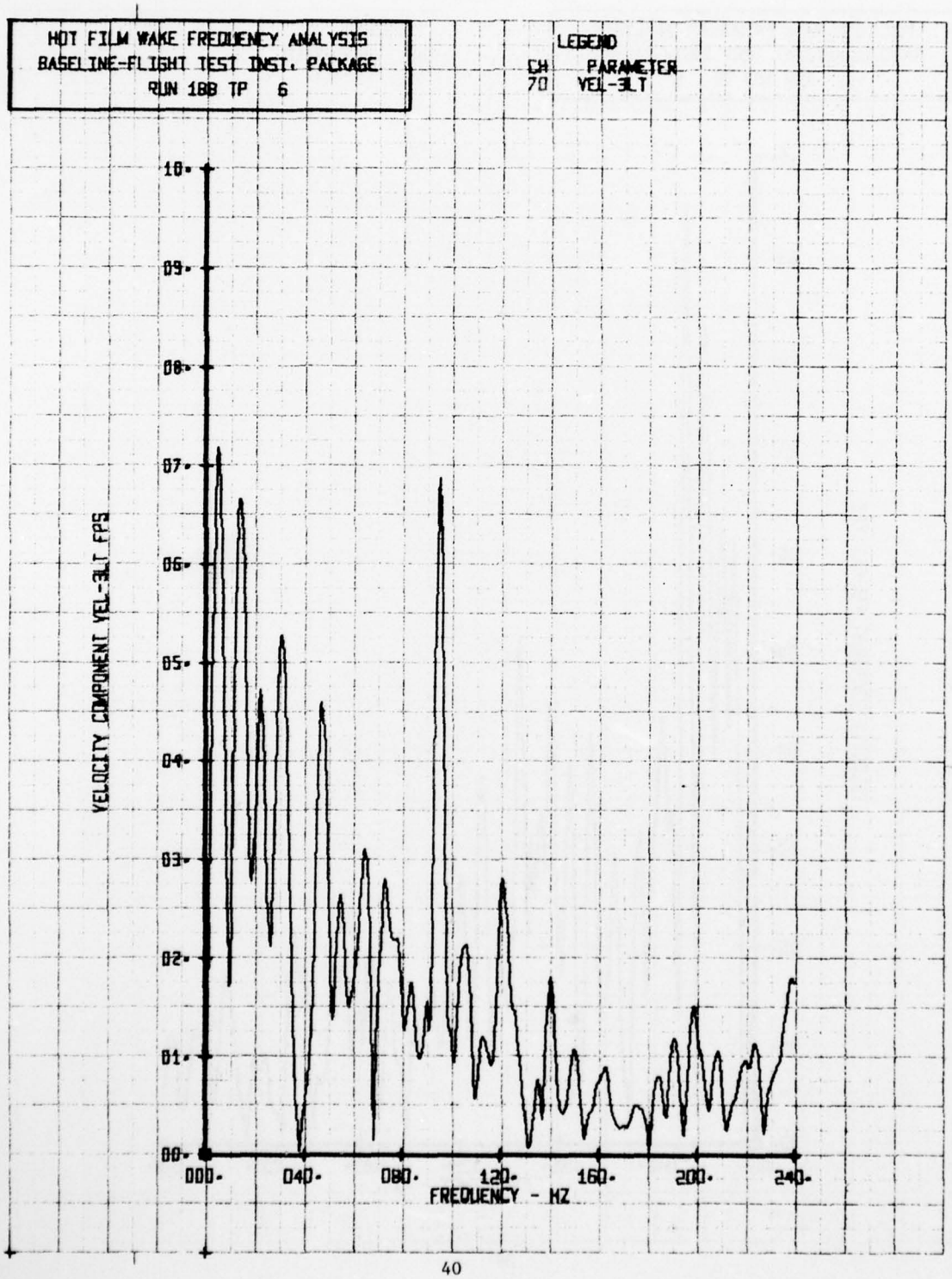

HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 8
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
000.
040.
080.
120.
160.
200.
240.
FREQUENCY - HZ

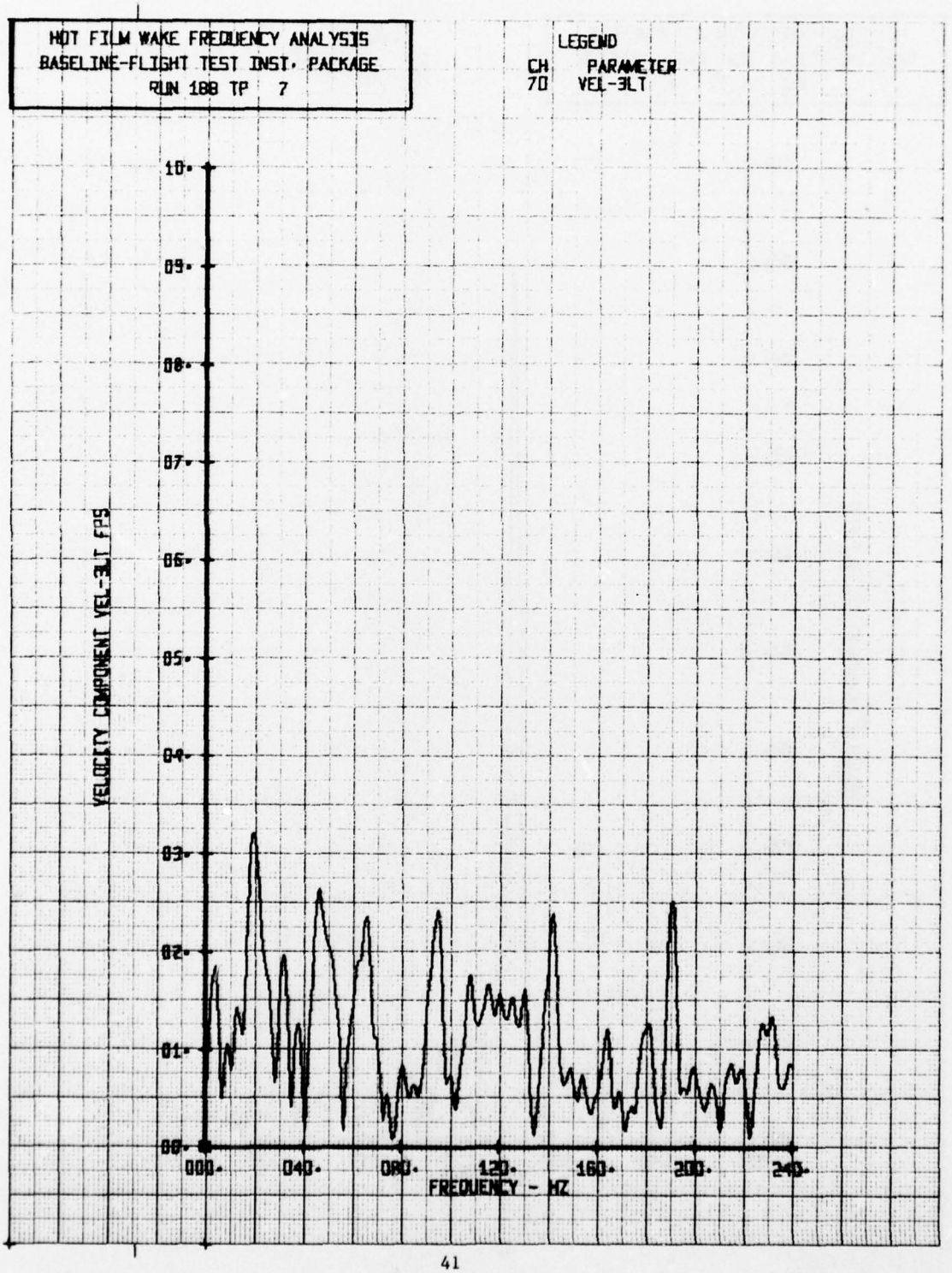

HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INSI. PACKAGE
RUN 188 TP 9
LEGEND
CH PARAMETER
71 VEL-3RT
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
VELOCITY COMPONENT VEL-3RT FPS
000.
040.
080.
120.
160.
200.
240.
FREQUENCY - HZ

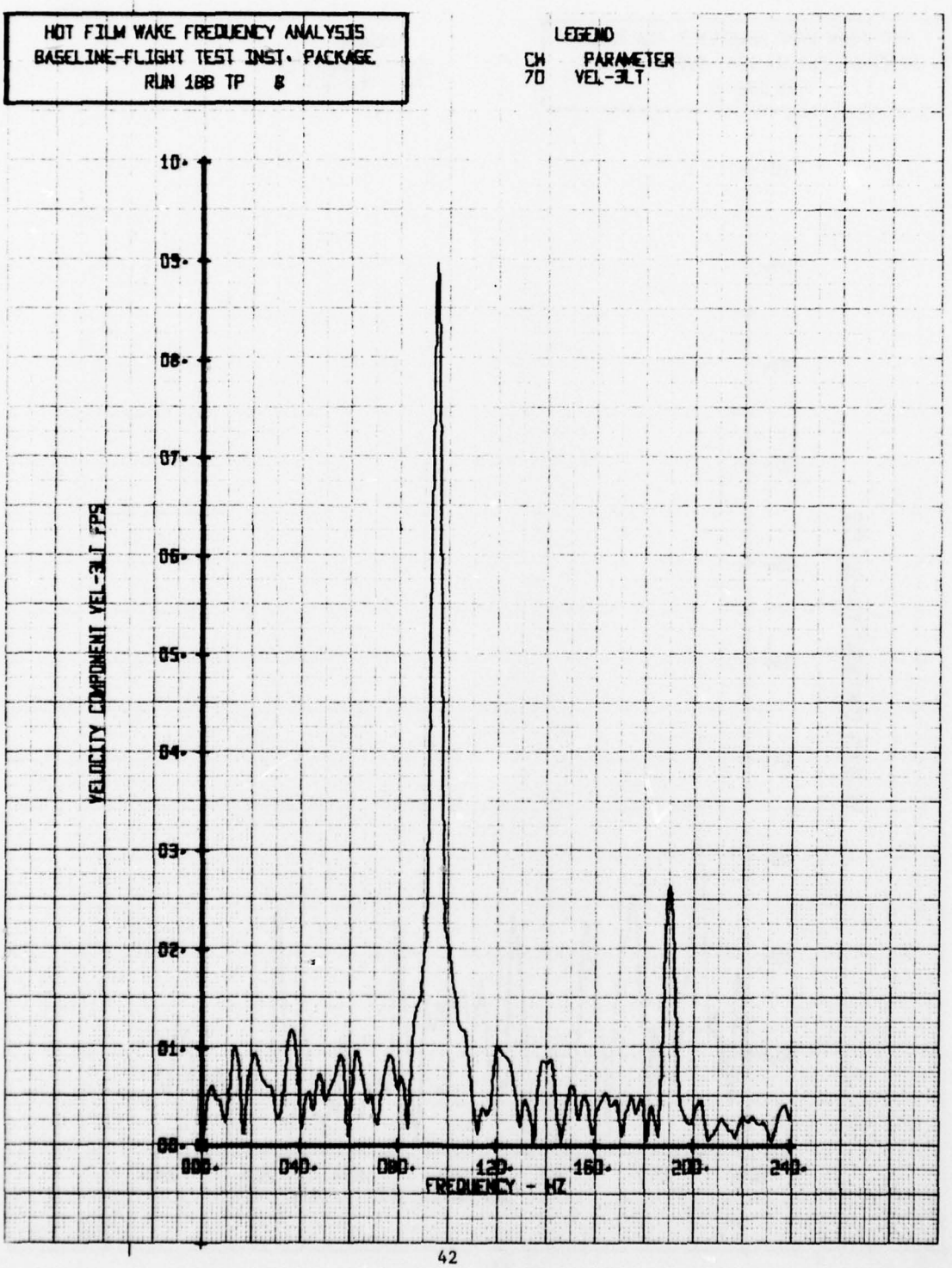

HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 10
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
000.
040.
080.
120.
160.
200.
240.
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 4
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
000.
040.
080.
120.
160.
200.
240.
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 5
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
000.
040.
080.
120.
160.
200.
240.
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 6
LEGEND
CH PARAMETER
70 YEL-3LT
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
VELOCITY COMPONENT YEL-3LT FPS
000.
040.
080.
120.
160.
200.
240.
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 7
LEGEND
CH PARAMETER
70 VEL-3LT
10.
09.
08.
07.
06.
05.
04.
03.
02.
01.
00.
VELOCITY COMPONENT VEL-3LT FPS
000.
040.
080.
120.
160.
200.
240.
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 8
LEGEND
CH PARAMETER
70 VEL-3LT
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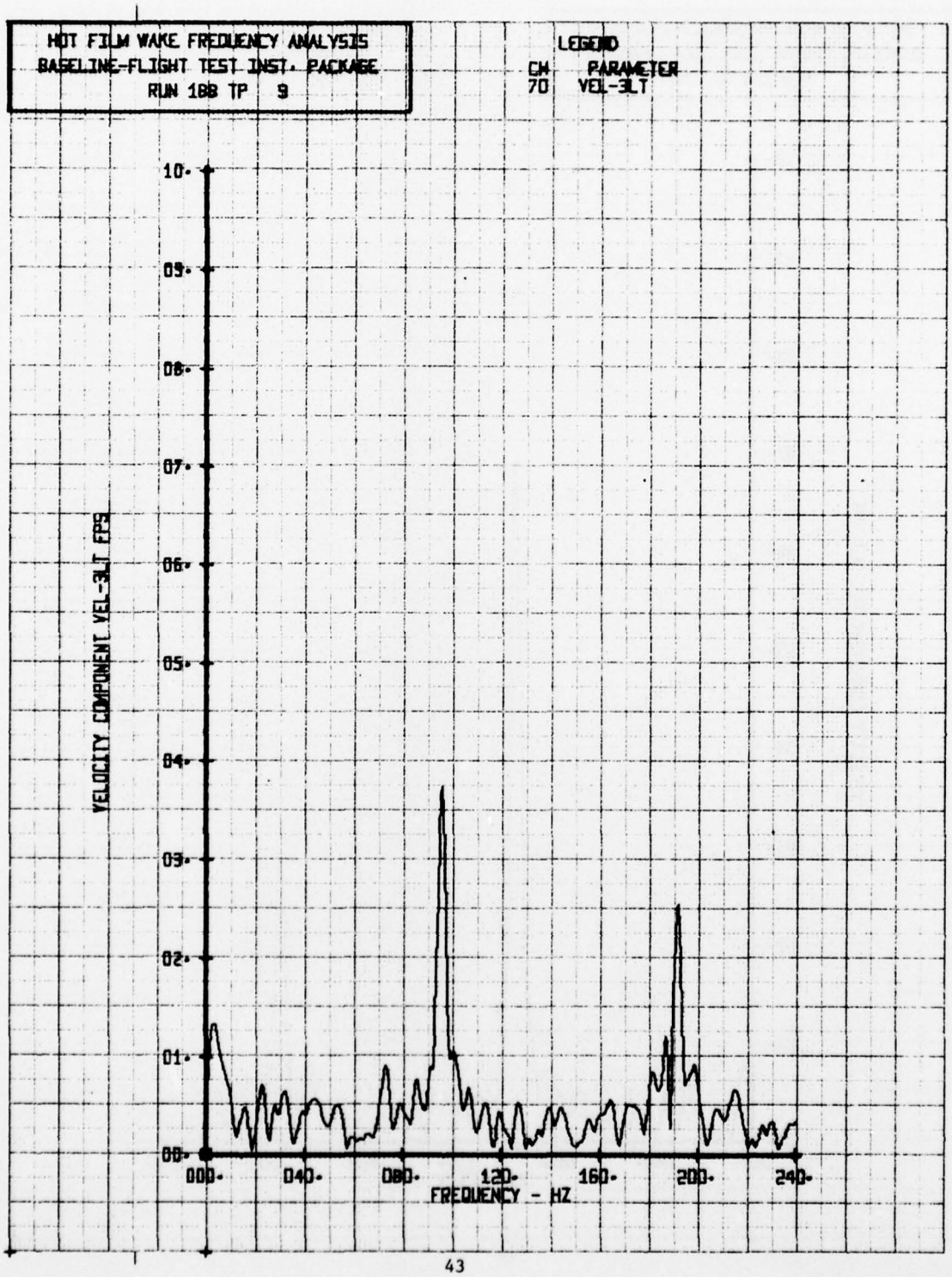
FREQUENCY - HZ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BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 9
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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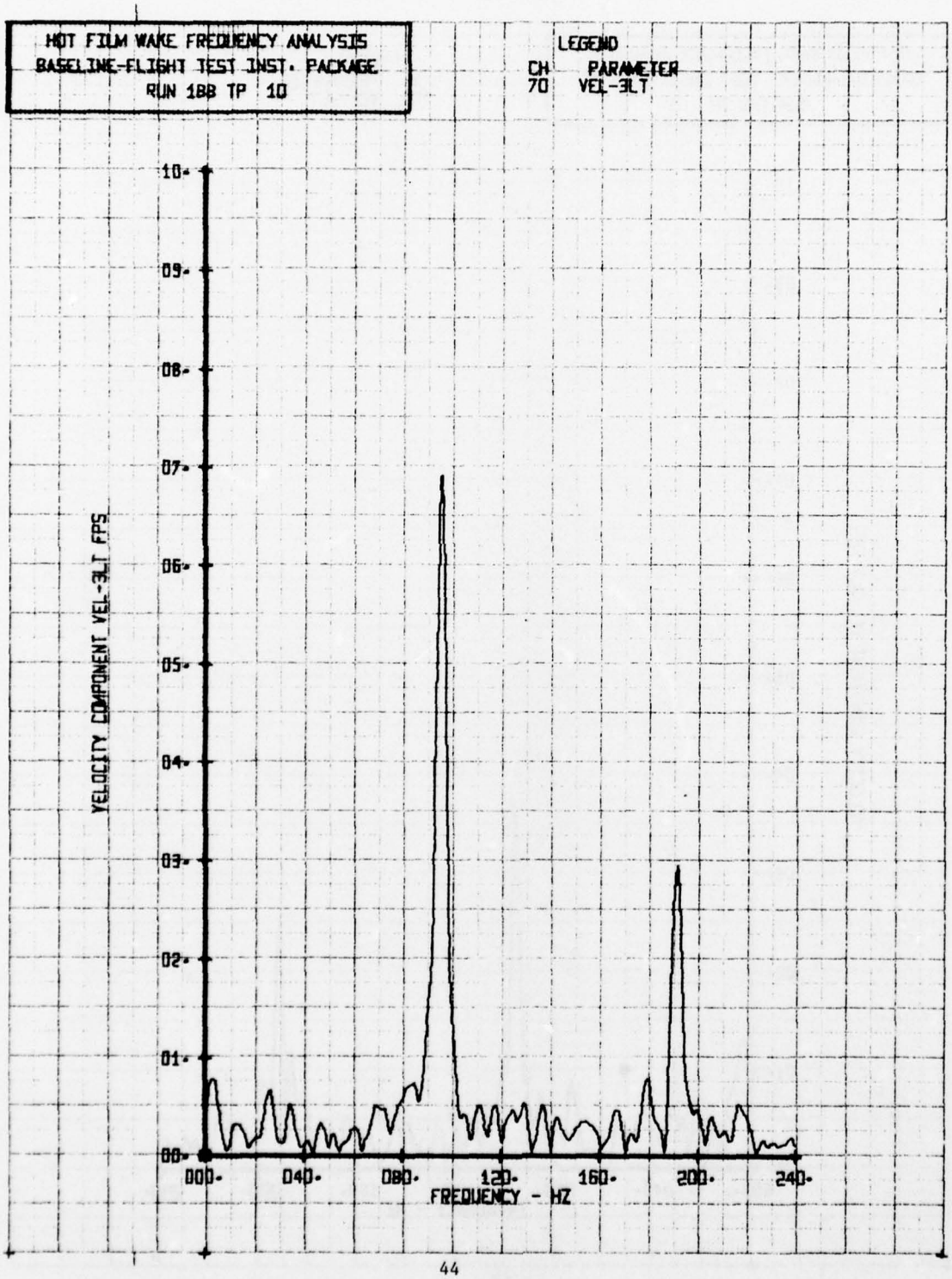
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BASELINE-FLIGHT TEST INST. PACKAGE
RUN 188 TP 10
LEGEND
CH PARAMETER
70 VEL-3LT
YELOCITY COMPONENT VEL-3LT FPS
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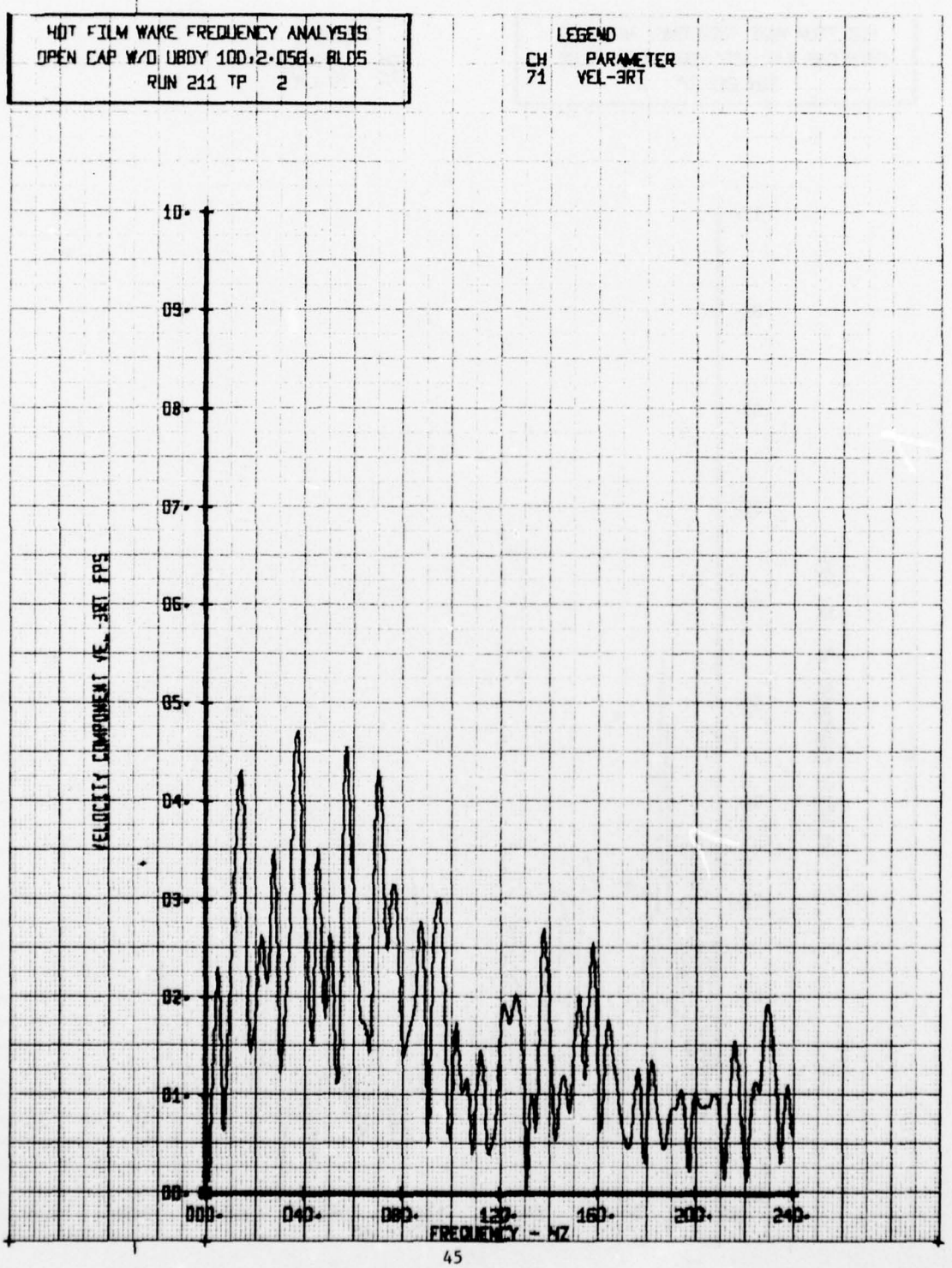
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OPEN CAP W/O UBDY 100,2.056, BLDS
RUN 211 TP 2
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VE. -3RT FPS
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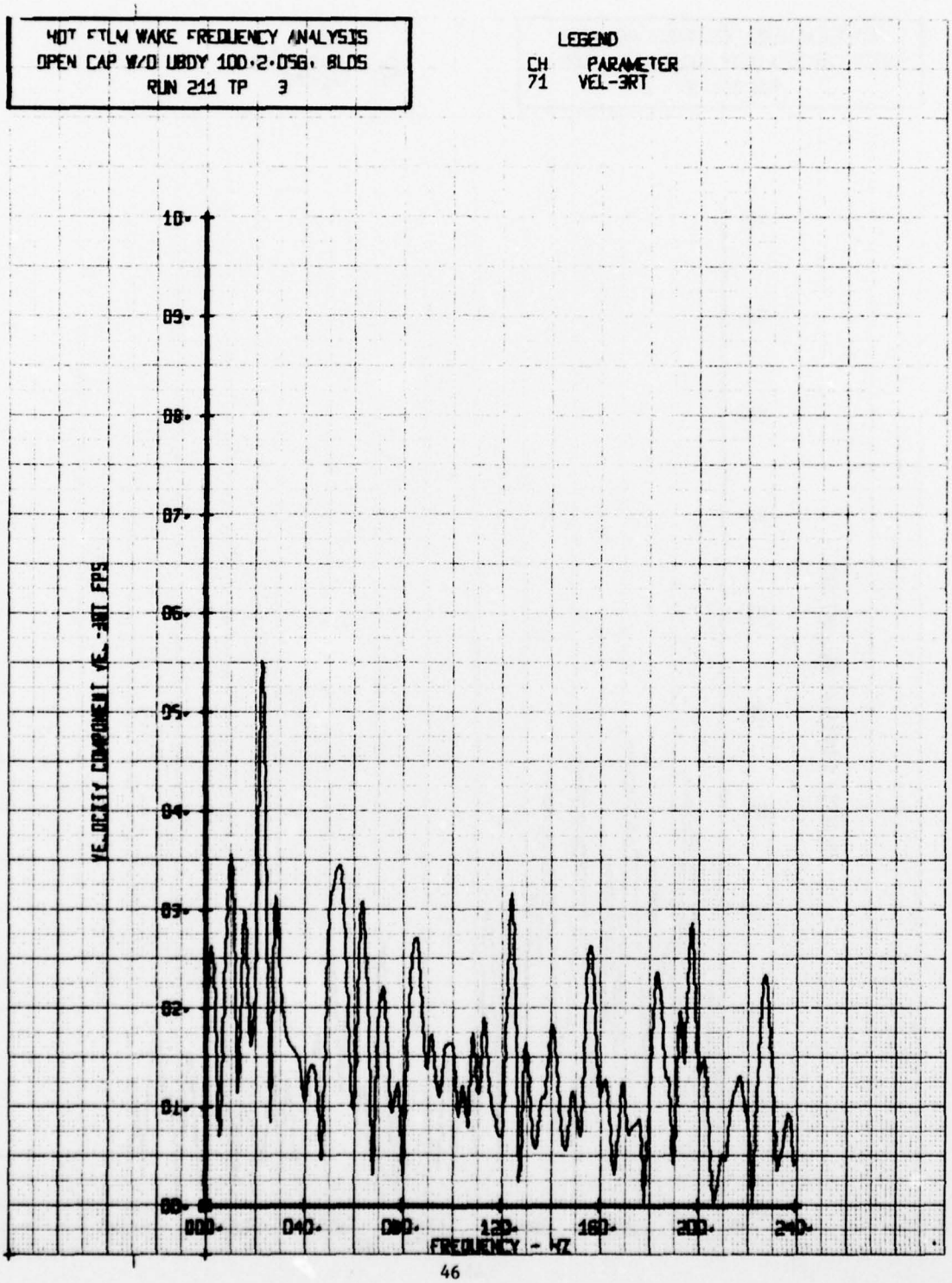
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OPEN CAP W/O UBDY 100-2-056, BLDS
RUN 211 TP 3
LEGEND
CH PARAMETER
71 VEL-3RT
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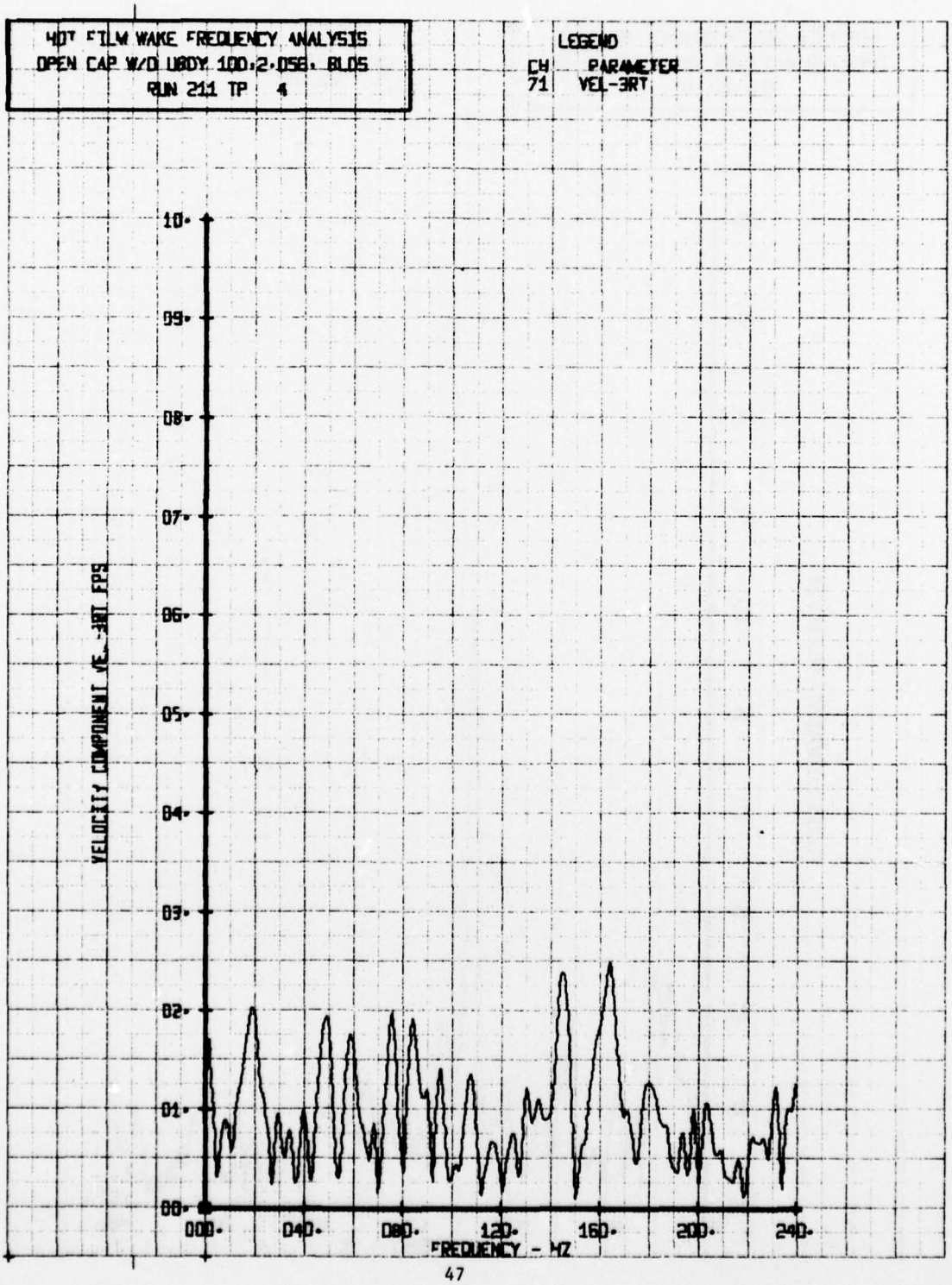
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 100.2.056. BLDS
RUN 211 TP 4
LEGEND
CH PARAMETER
71 VEL-3RT
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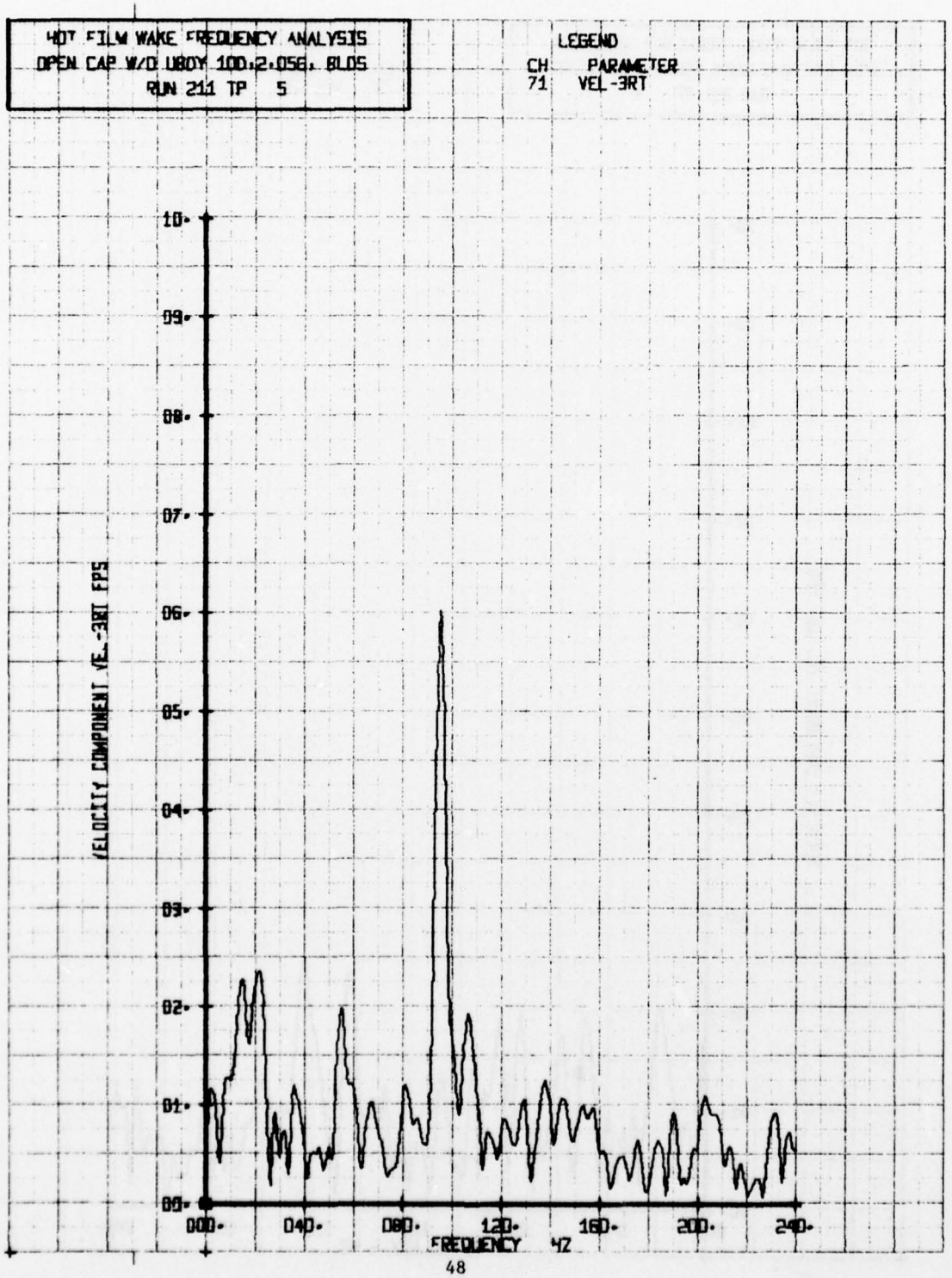
FREQUENCY - HZ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OPEN CAP W/O UBOY 100.2.056. BLDS
RUN 211 TP 5
LEGEND
CH PARAMETER
71 VEL-3RT
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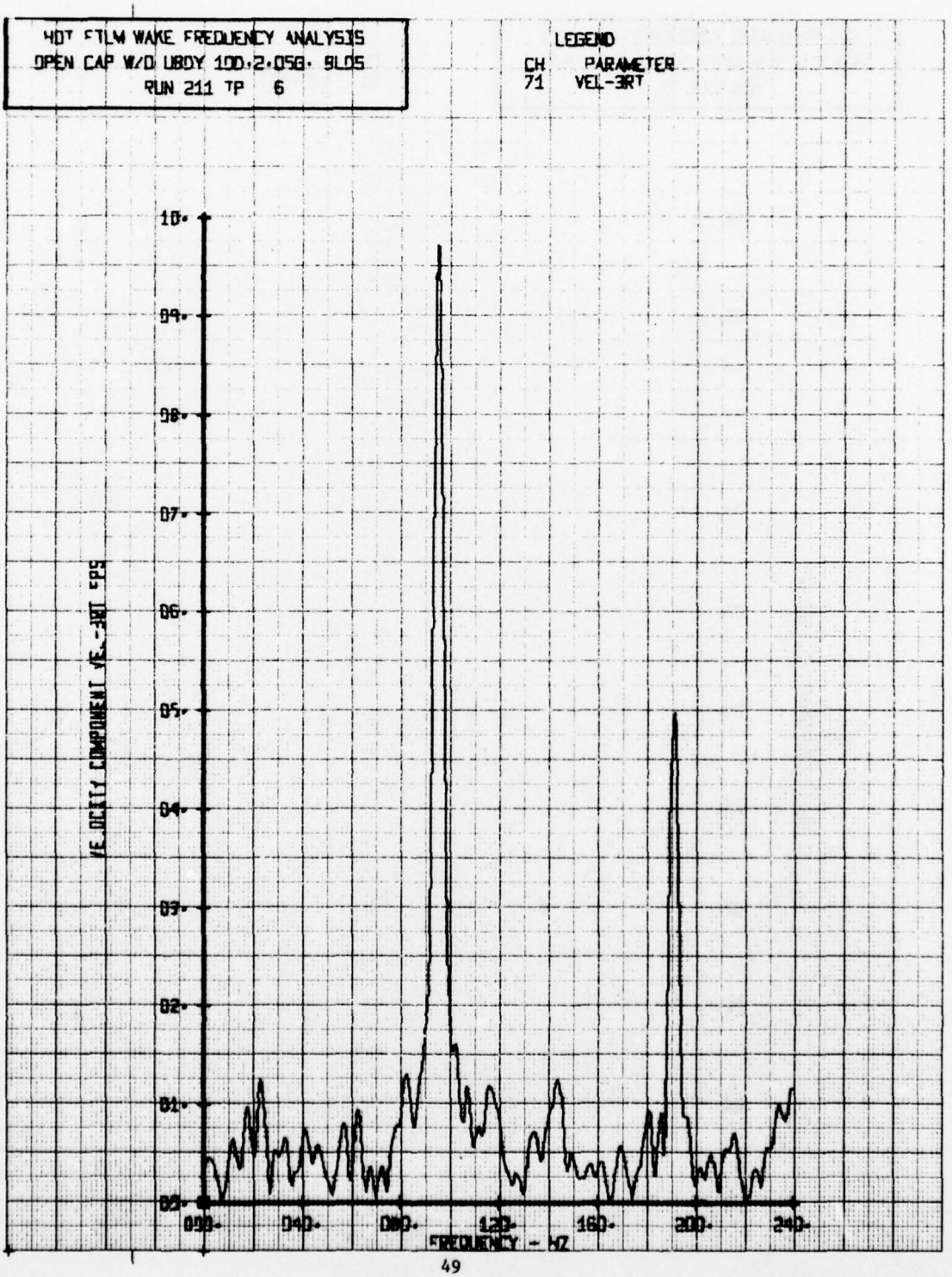
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RUN 211 TP 6
LEGEND
CH PARAMETER
71 VEL-3RT
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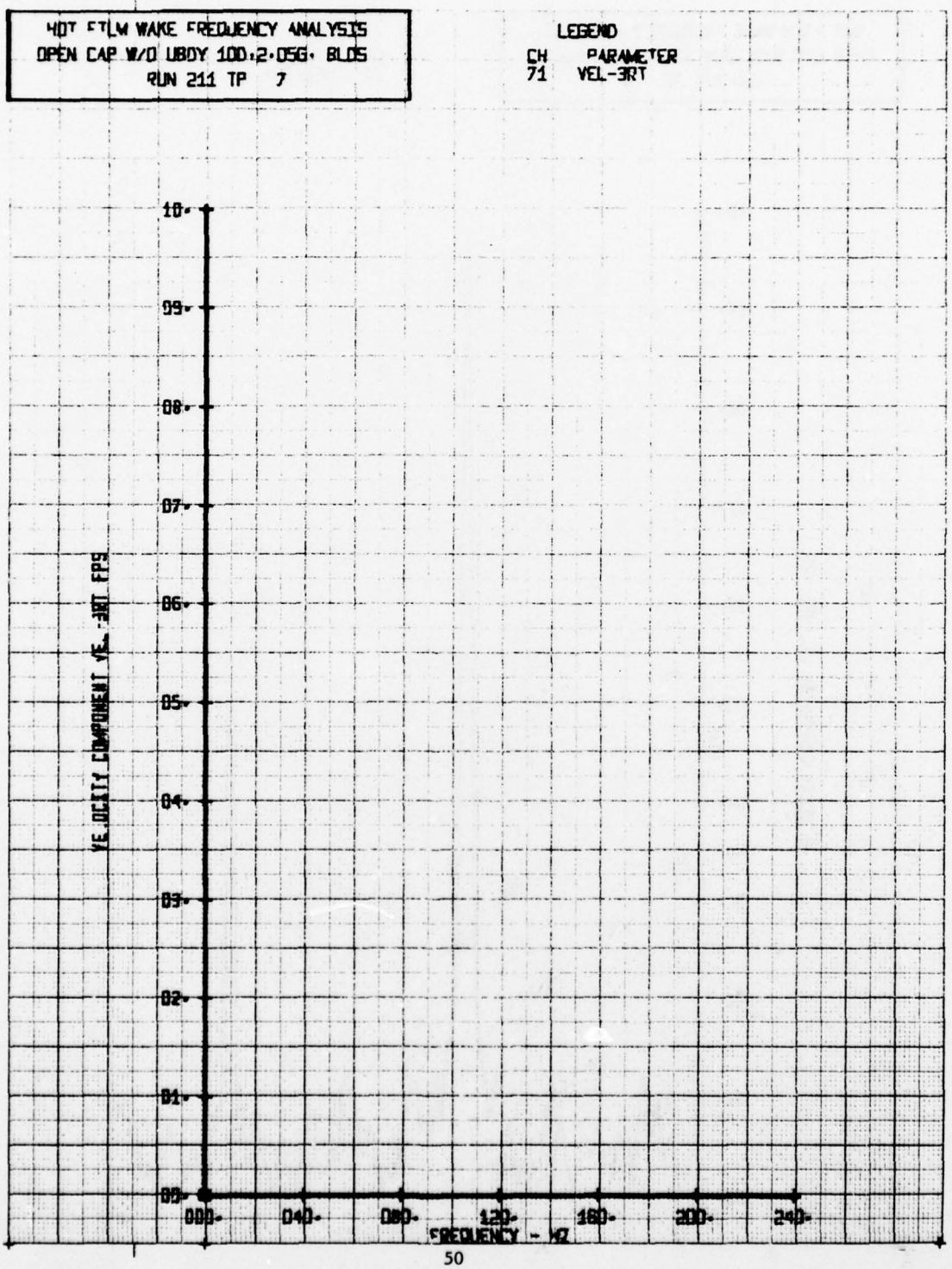
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OPEN CAP W/O UBDY 100:2·05G· BLDS
RUN 211 TP 7
LEGEND
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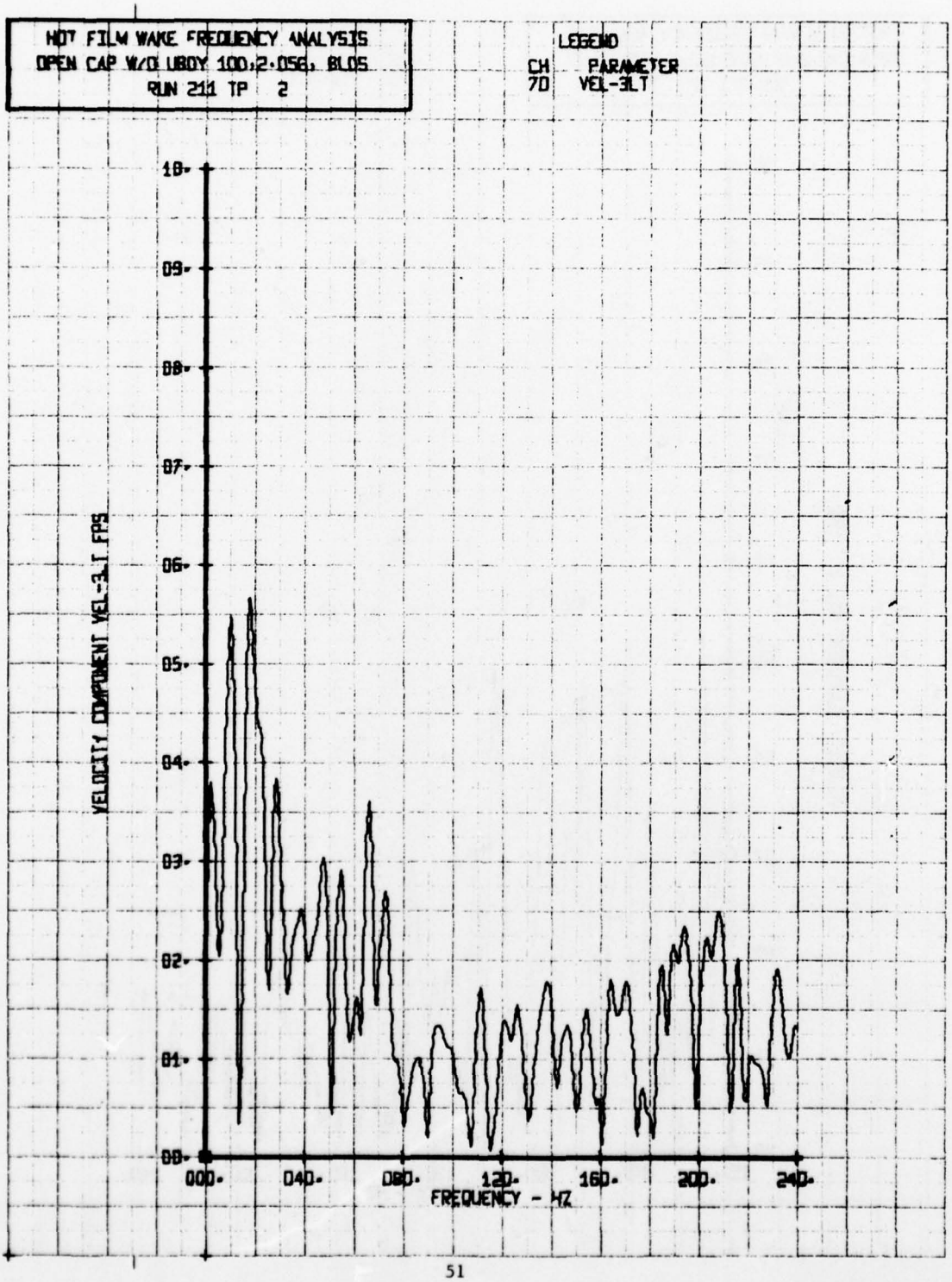
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RUN 211 TP 2
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CH PARAMETER
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VELOCITY COMPONENT VEL-3LT FPS
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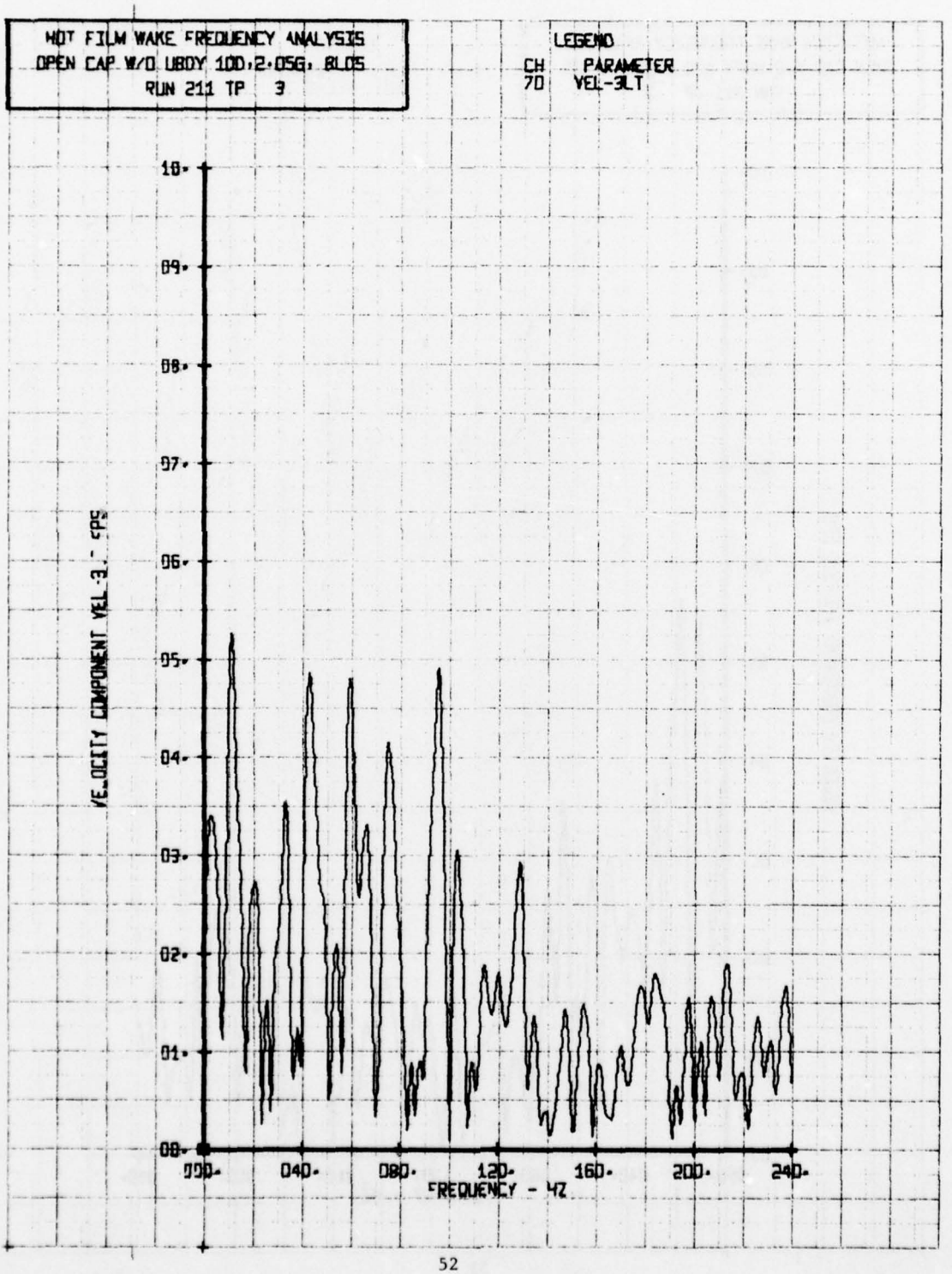
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OPEN CAP W/O UBDY 100,2.05G, BL05
RUN 211 TP 3
LEGEND
CH PARAMETER
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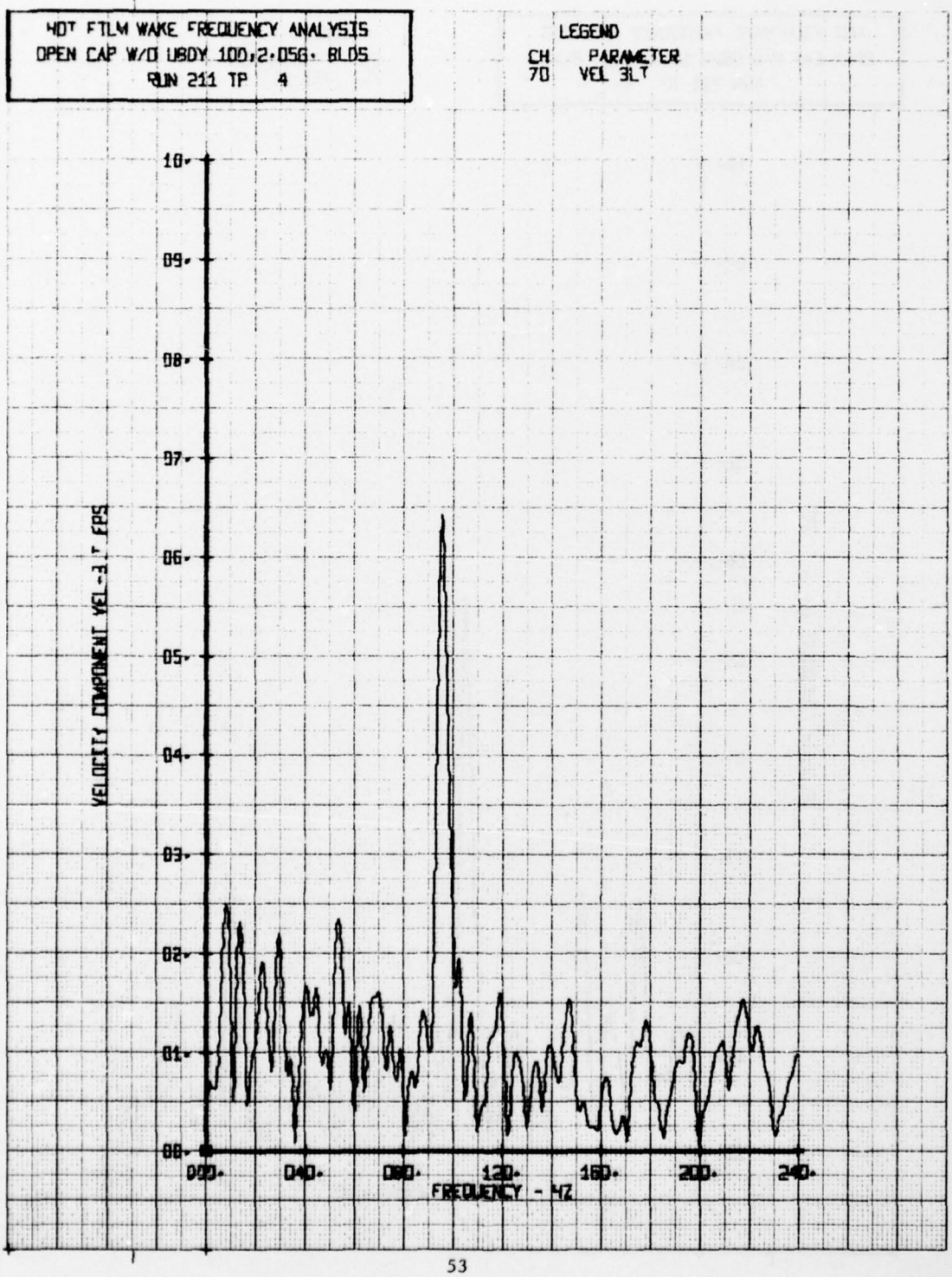
FREQUENCY - HZ
VELOCITY COMPONENT VEL-3, - FPS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OPEN CAP W/O UBDY 100,2.05G. BLDS
RUN 211 TP 4
LEGEND
CH PARAMETER
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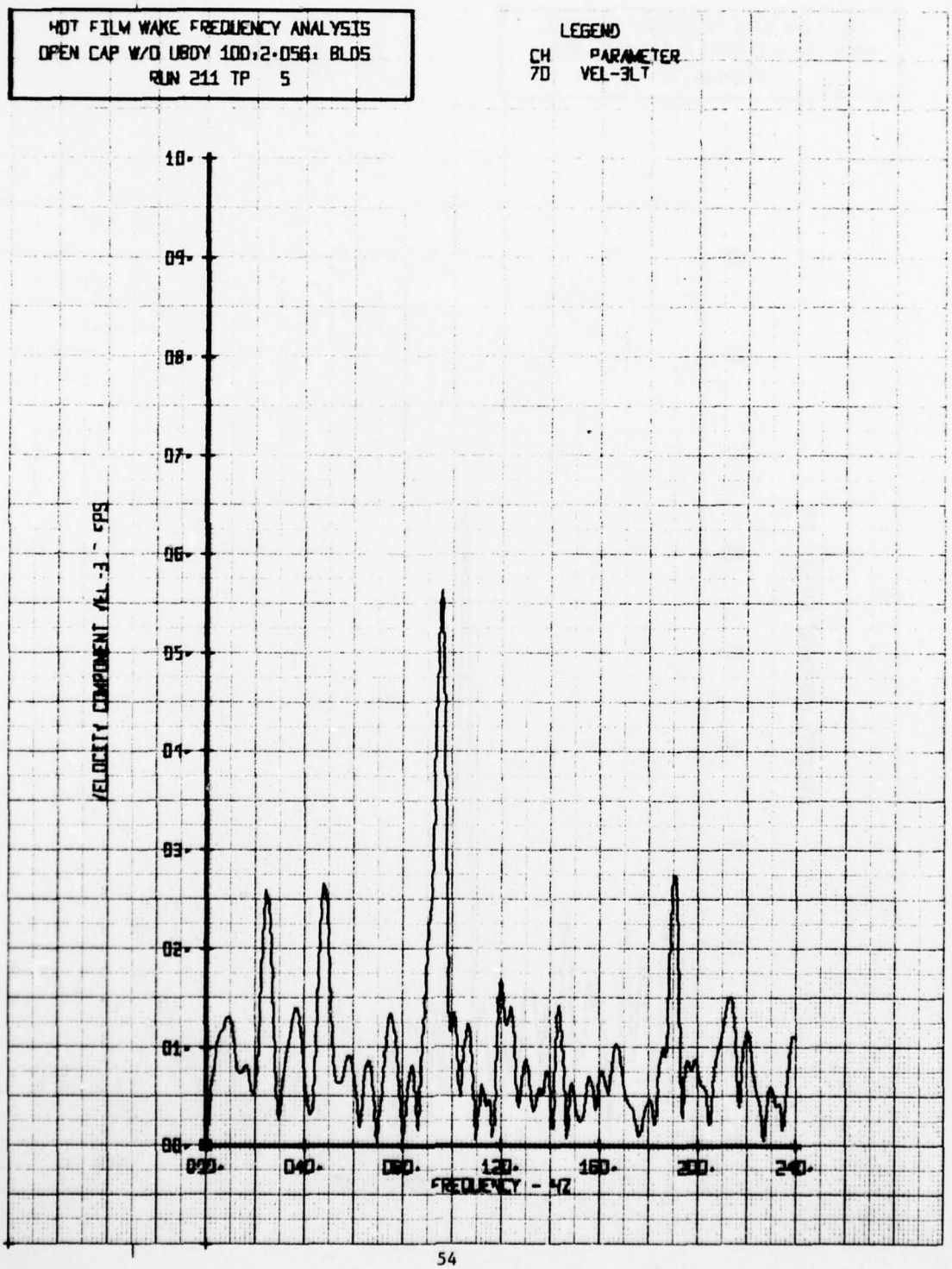
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OPEN CAP W/O UBDY 100,2.056, BLDS
RUN 211 TP 5
LEGEND
CH PARAMETER
7D VEL-3LT
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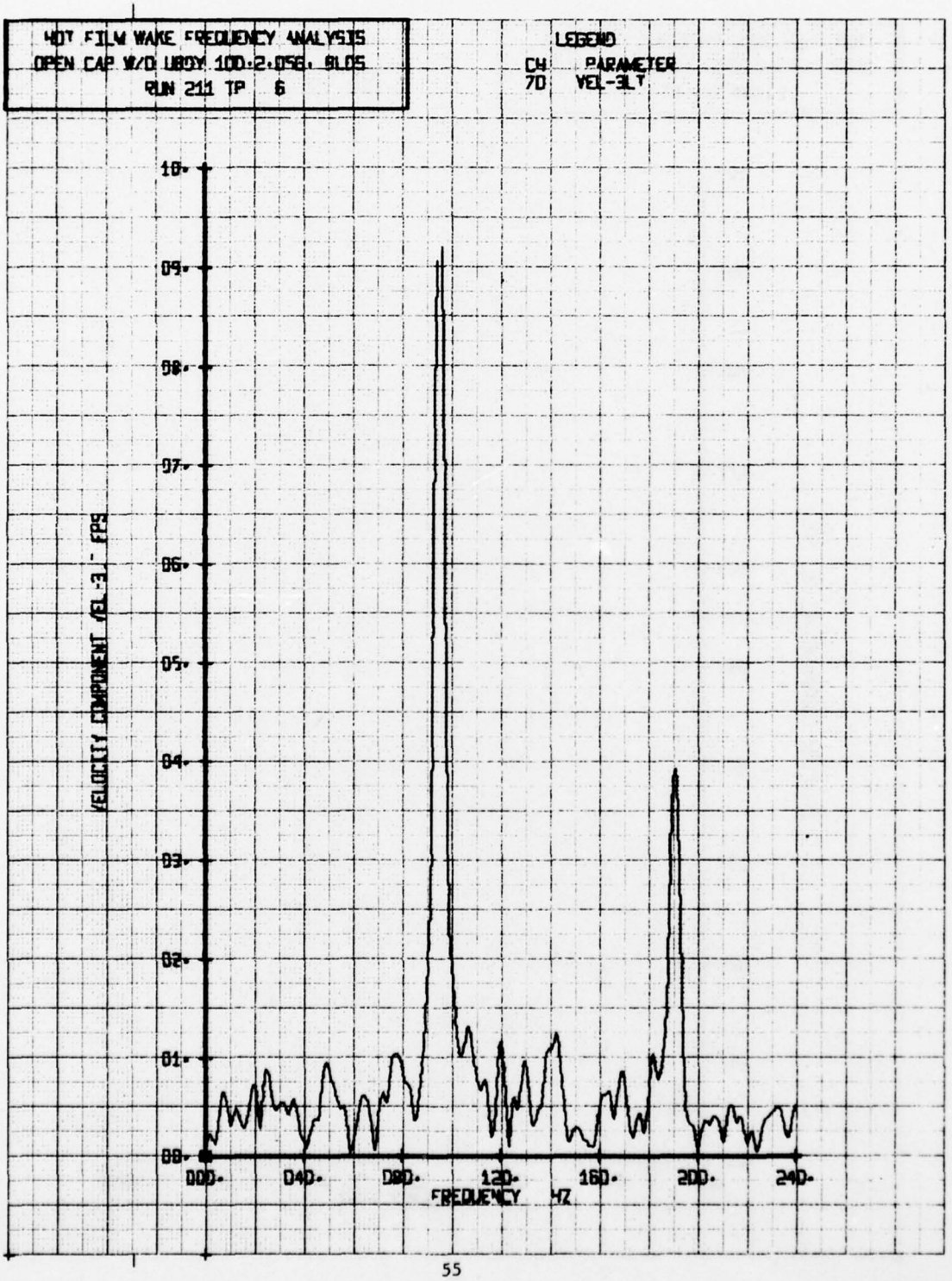
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RUN 211 TP 6
LEGEND
CH PARAMETER
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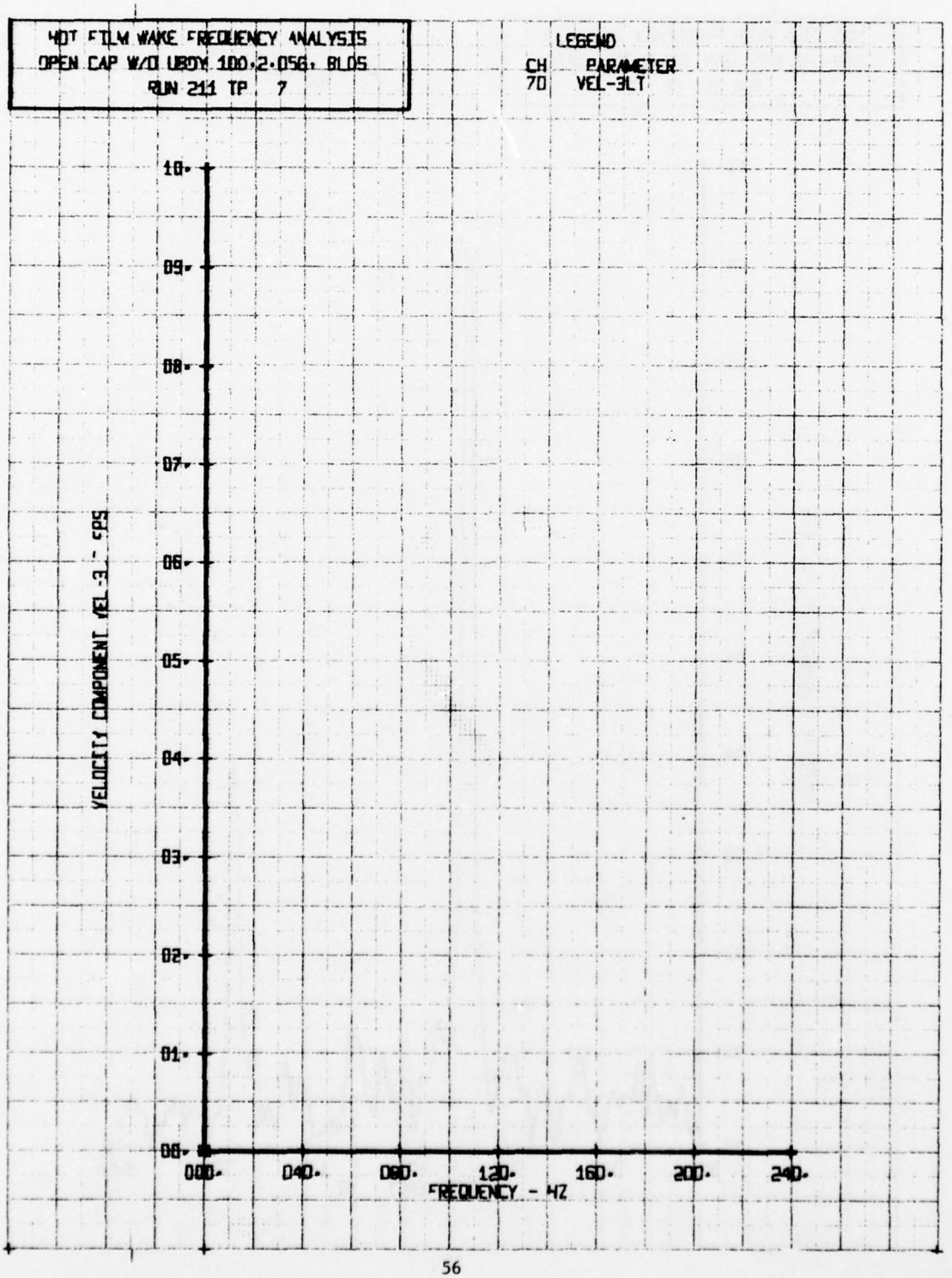
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RUN 211 TP 7
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CH PARAMETER
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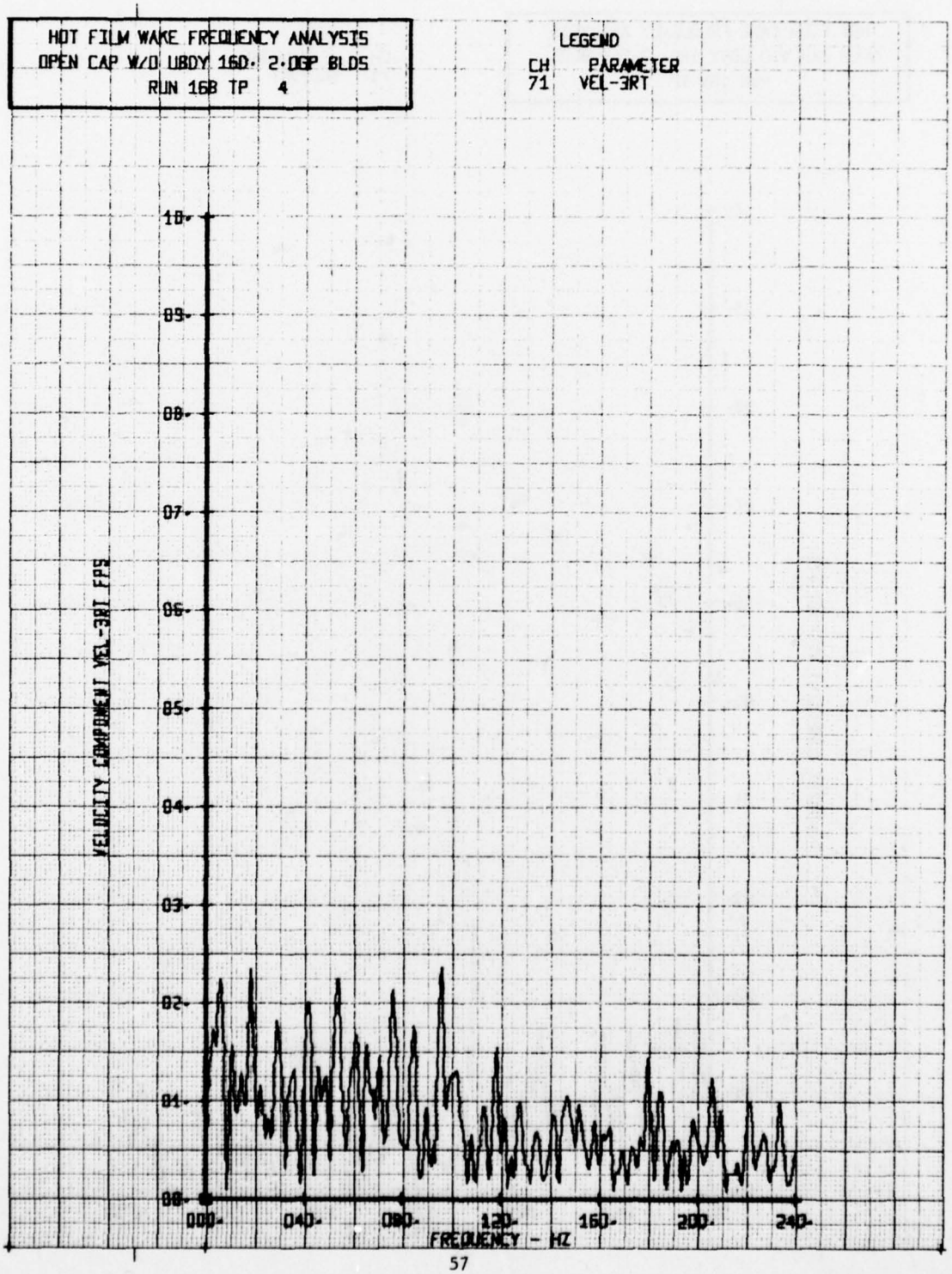
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OPEN CAP W/O UBDY 16D. 2.0GP BLDS
RUN 16B TP 4
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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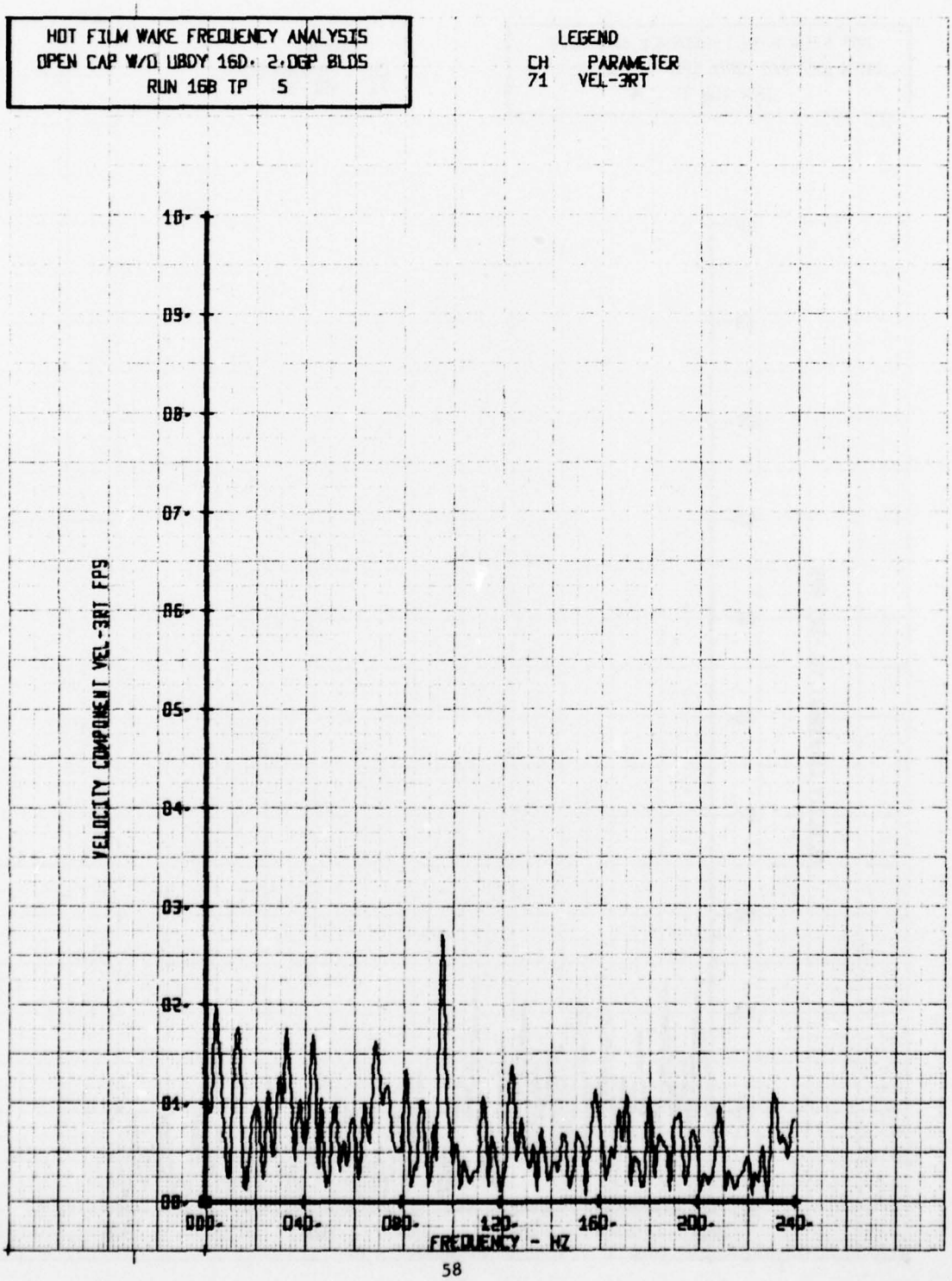
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RUN 16B TP 5
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VELOCITY COMPONENT VEL-3RT FPS
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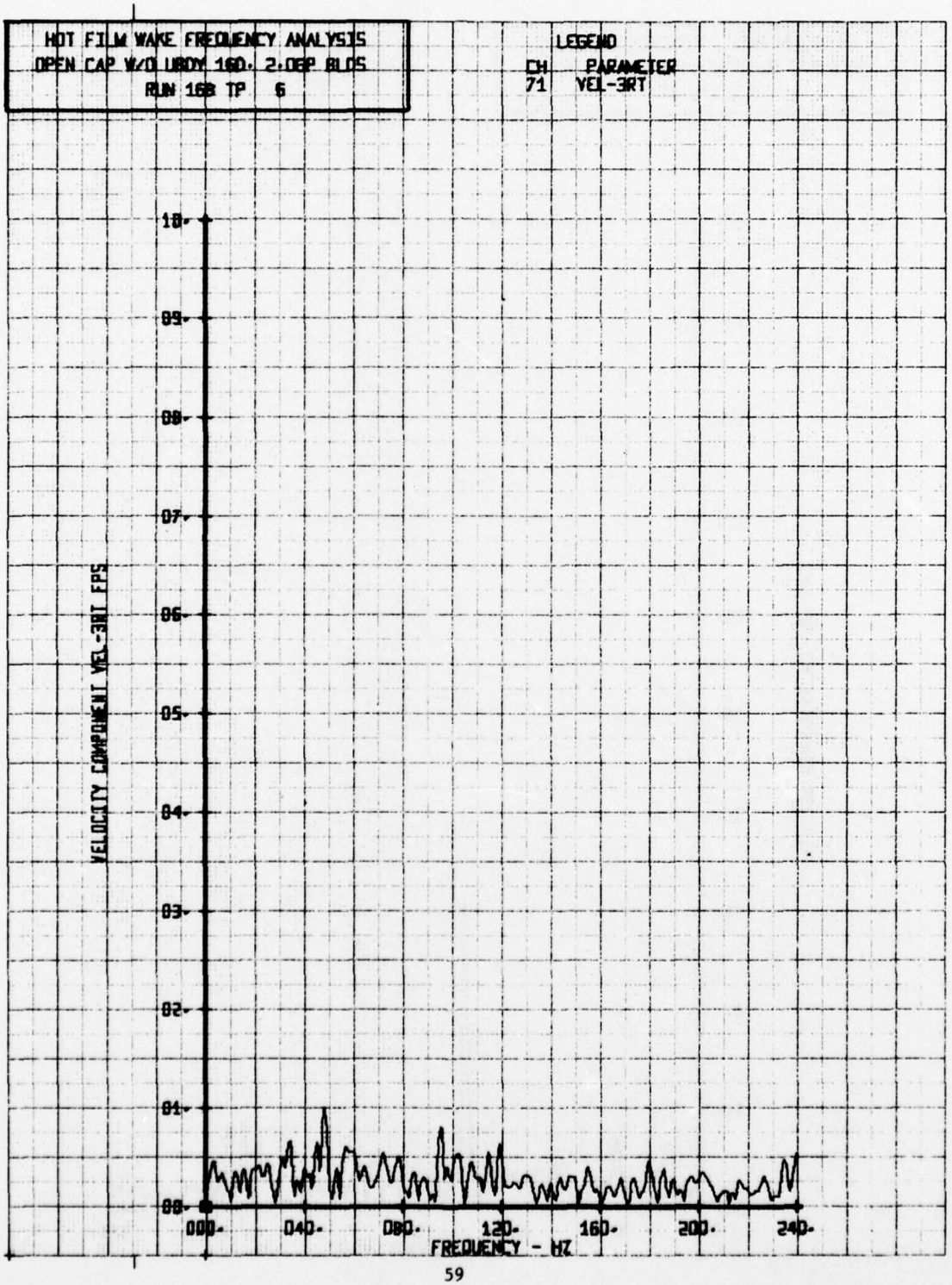
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RUN 168 TP 6
LEGEND
CH PARAMETER
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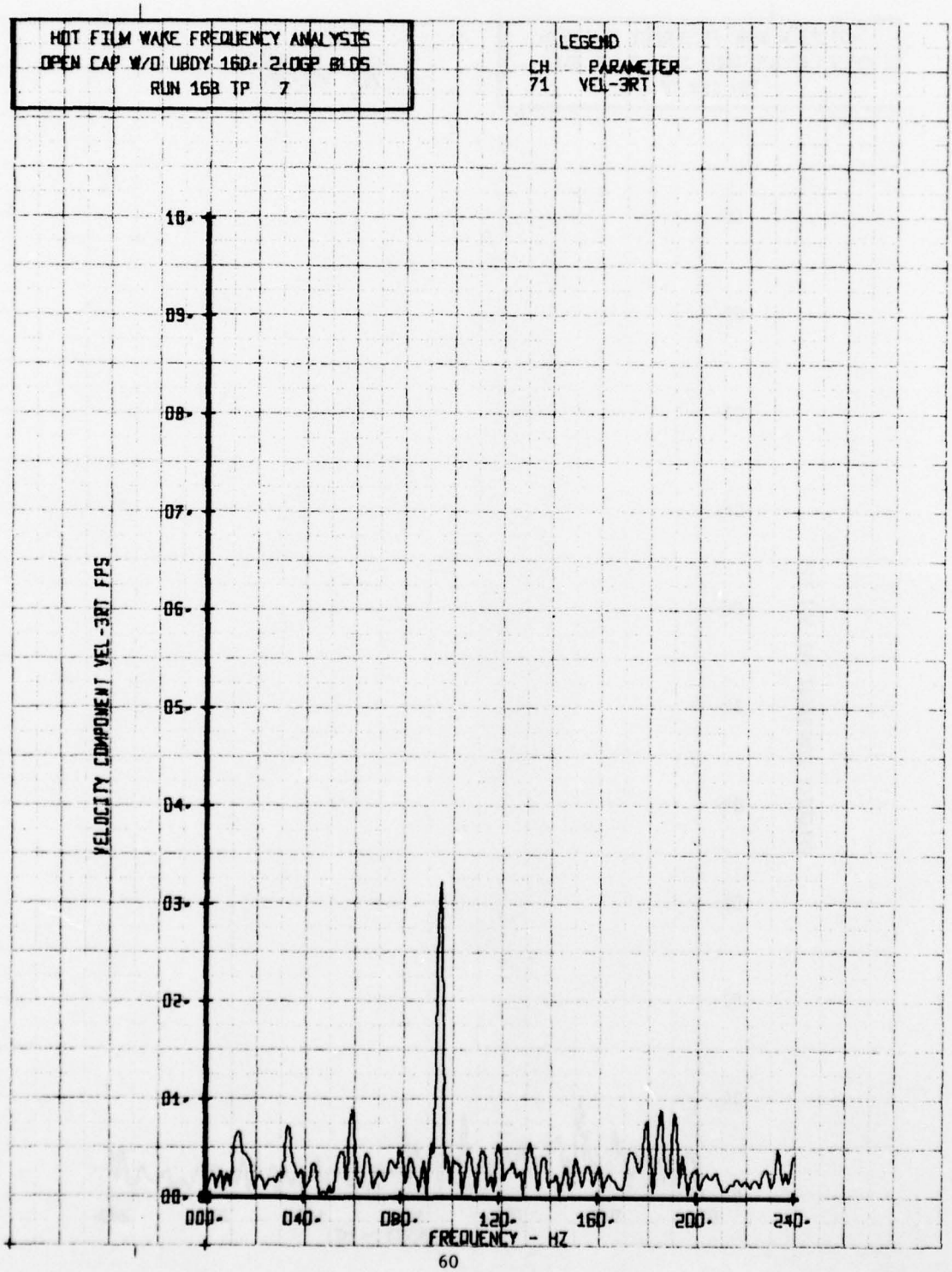
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RUN 168 TP 7
LEGEND
CH PARAMETER
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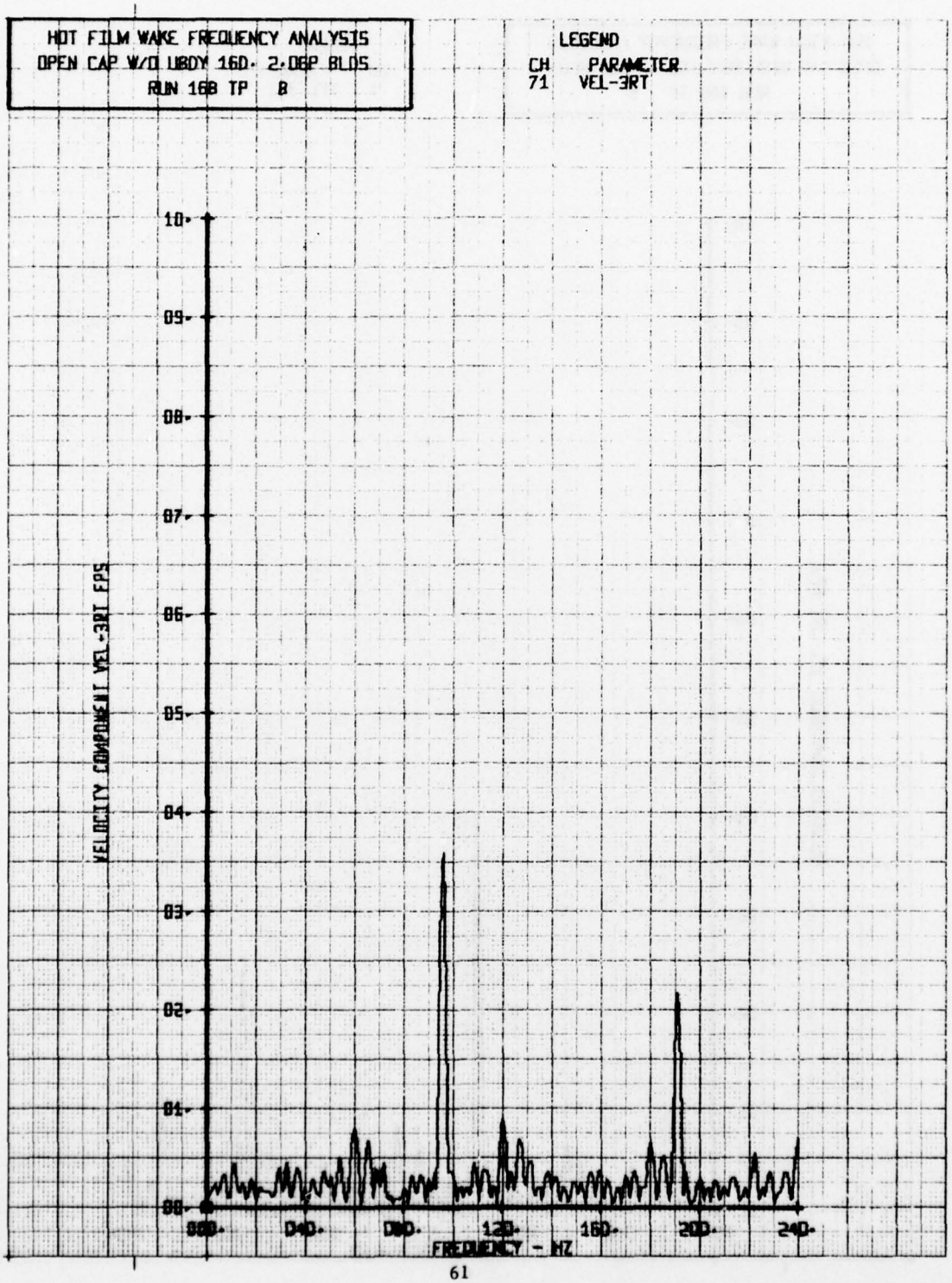
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LEGEND
CH PARAMETER
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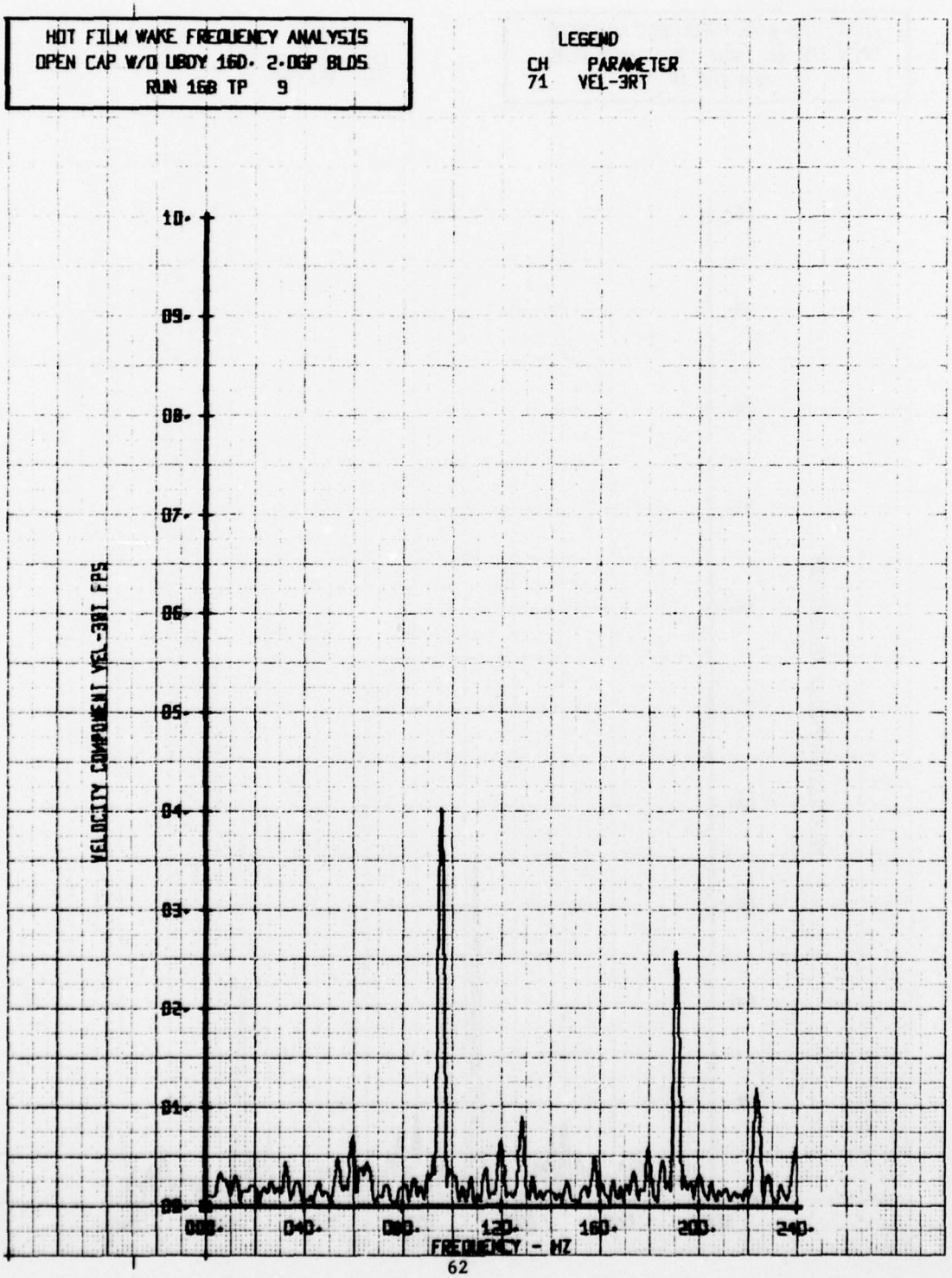
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 168 TP 9
LEGEND
CH PARAMETER
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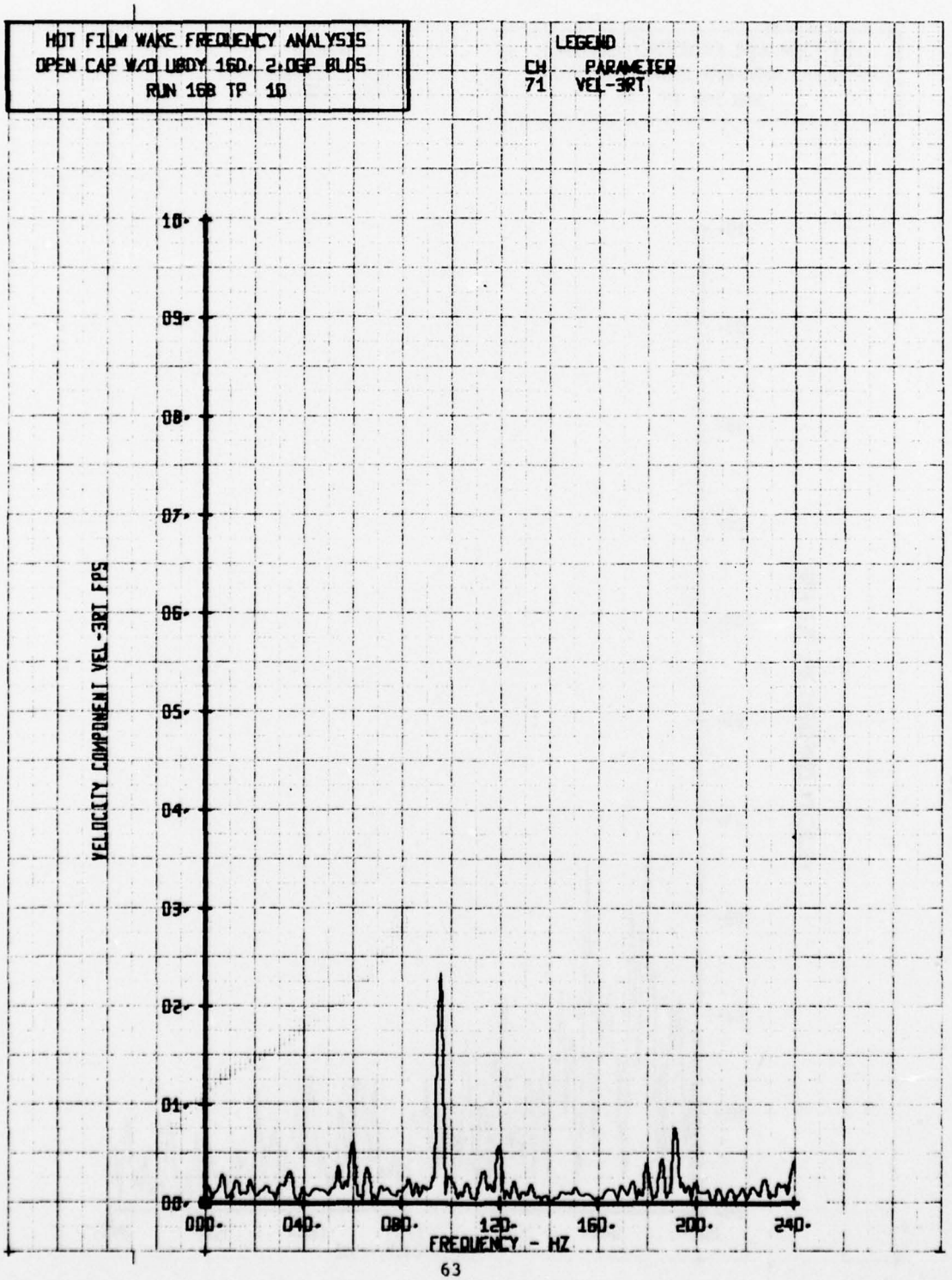
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OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 168 TP 10
LEGEND
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VELOCITY COMPONENT VEL-3RT FPS
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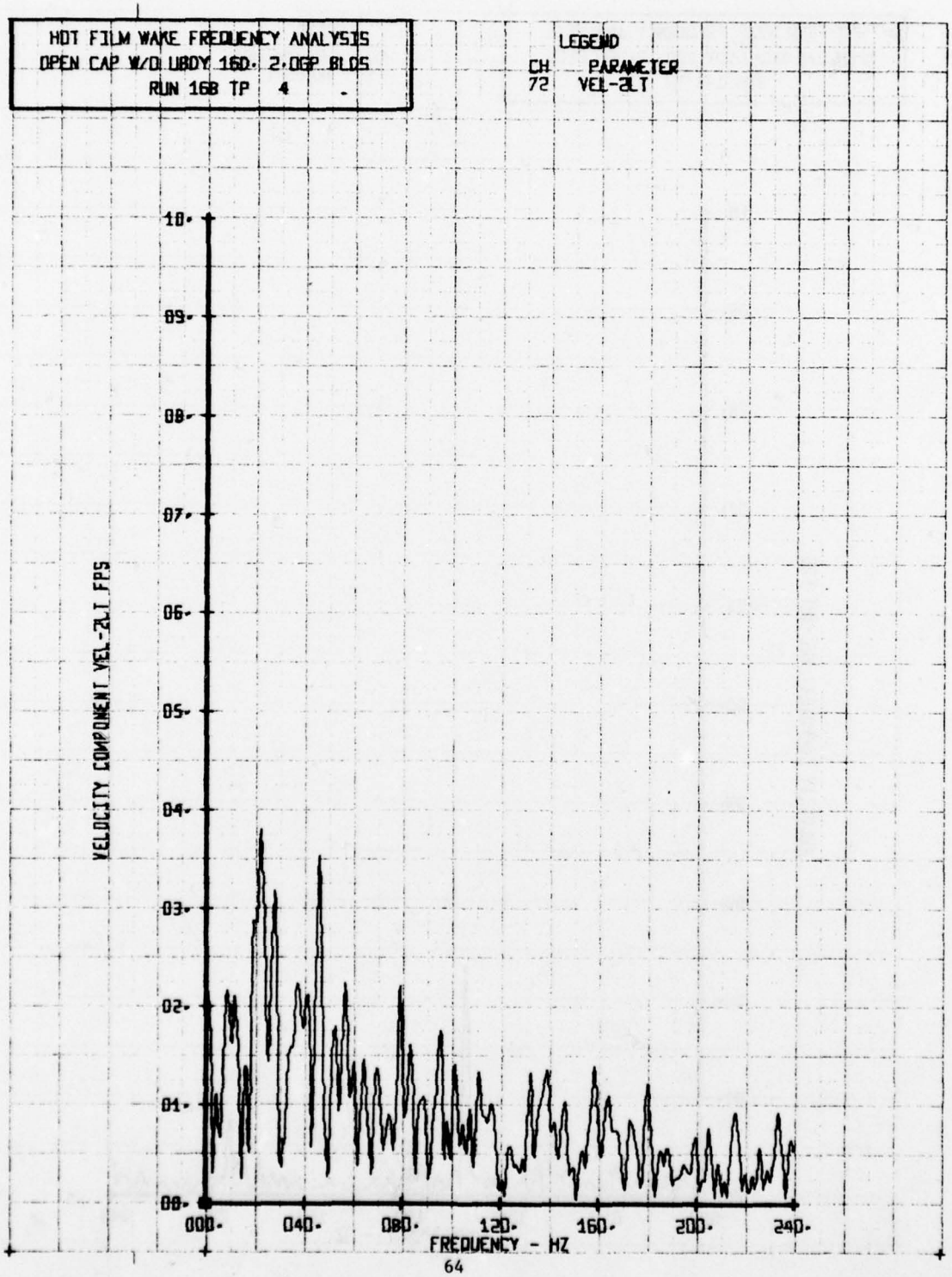
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 16D. 2.0GP BLDS
RUN 16B TP 4
LEGEND
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72 VEL-2LT
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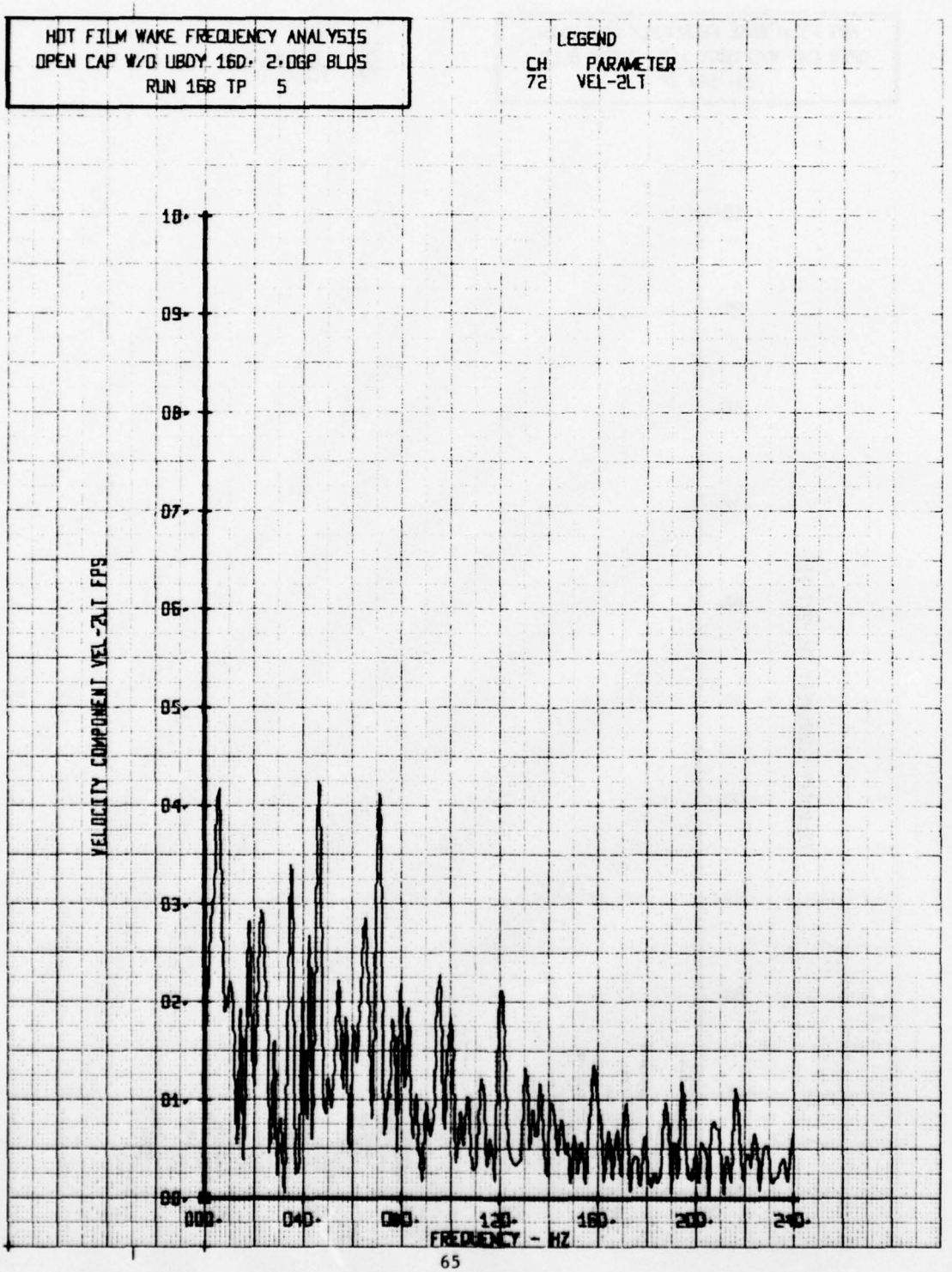
VELOCITY COMPONENT VEL-2LT FPS
FREQUENCY - HZ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OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 168 TP 5
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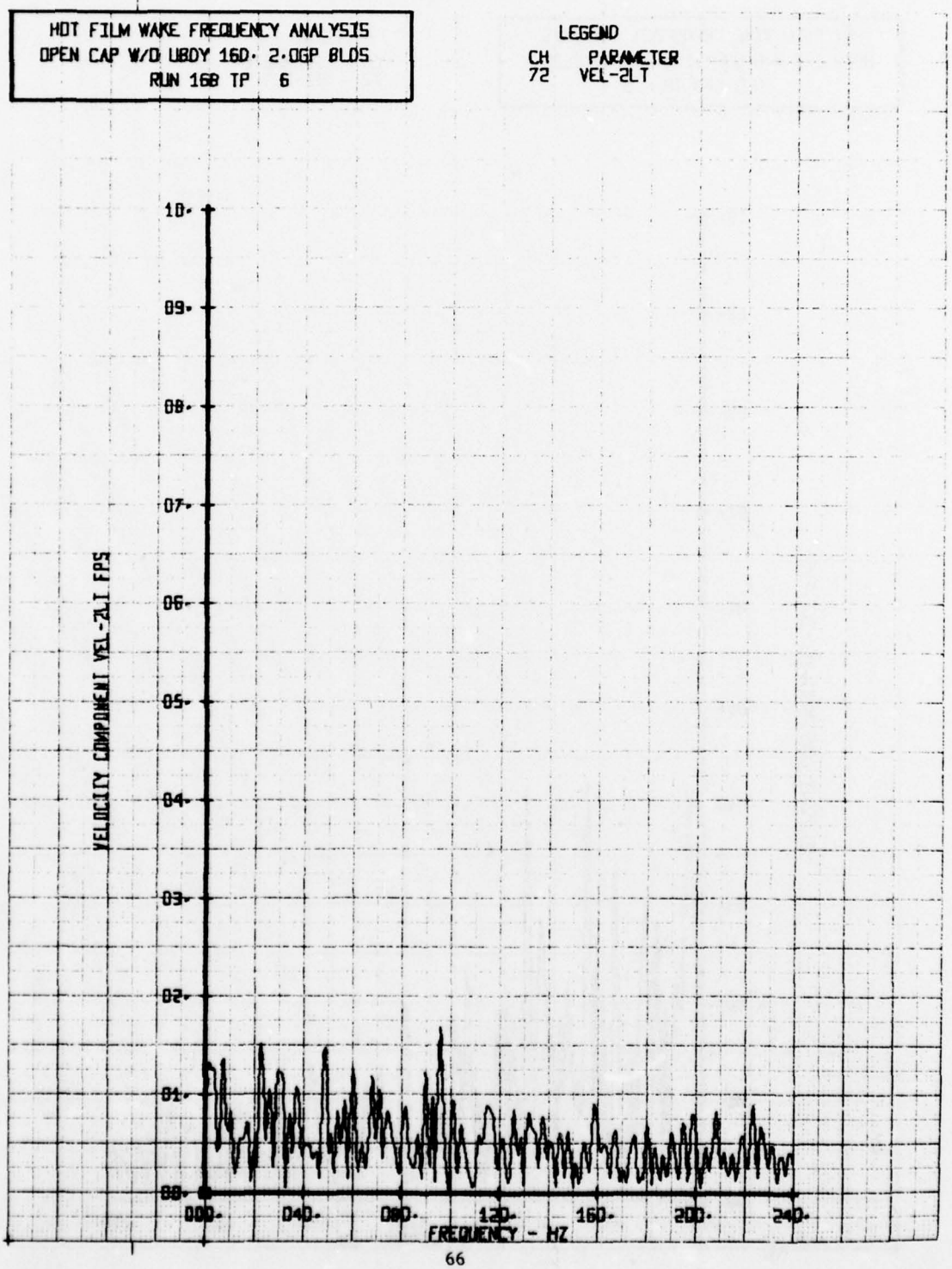
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OPEN CAP W/O UBDY 16D· 2·0GP 8LOS
RUN 168 TP 6
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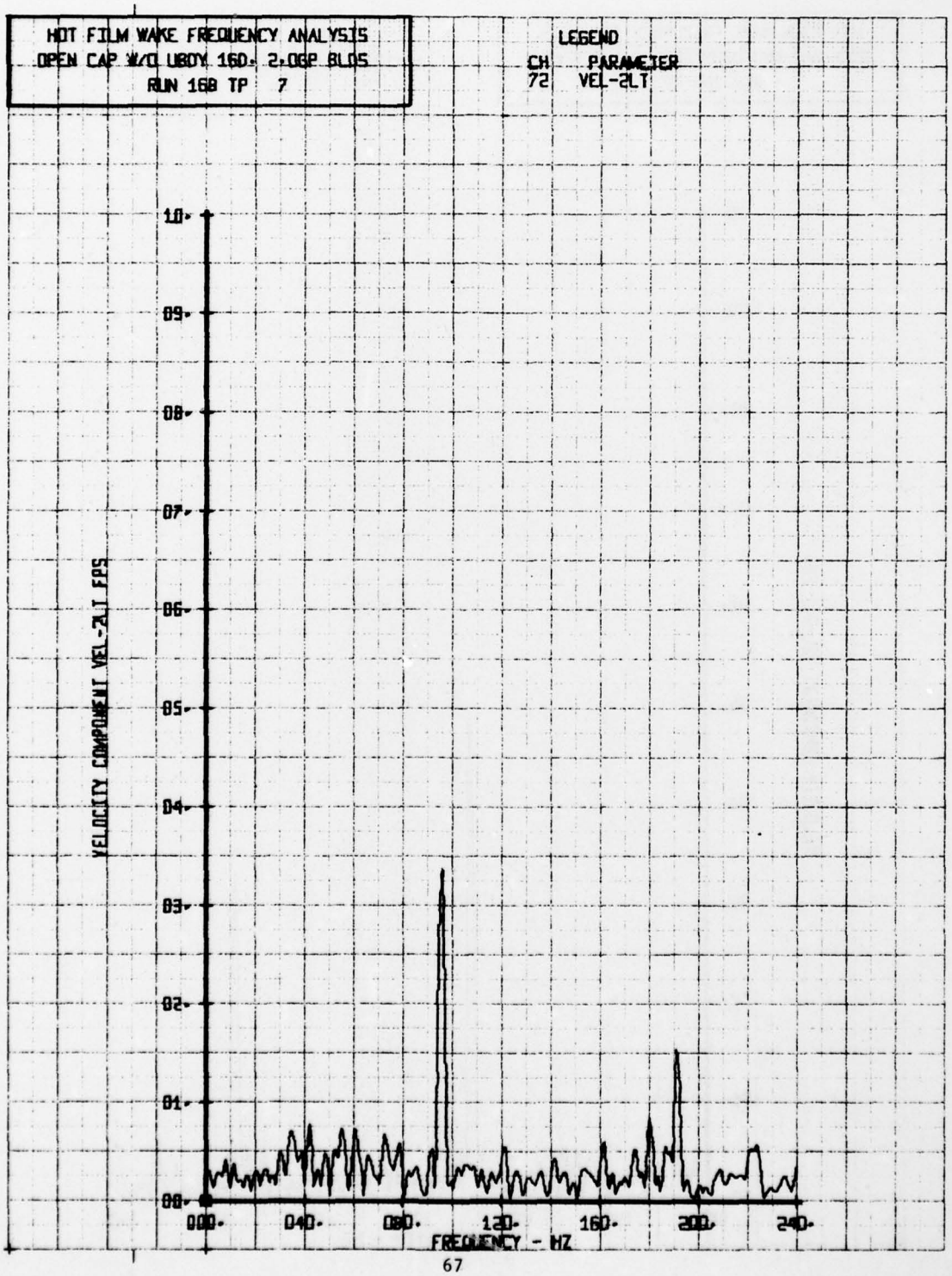
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBOY 160. 2.0GP BLDS
RUN 168 TP 7
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VELOCITY COMPONENT VEL-2LT FPS
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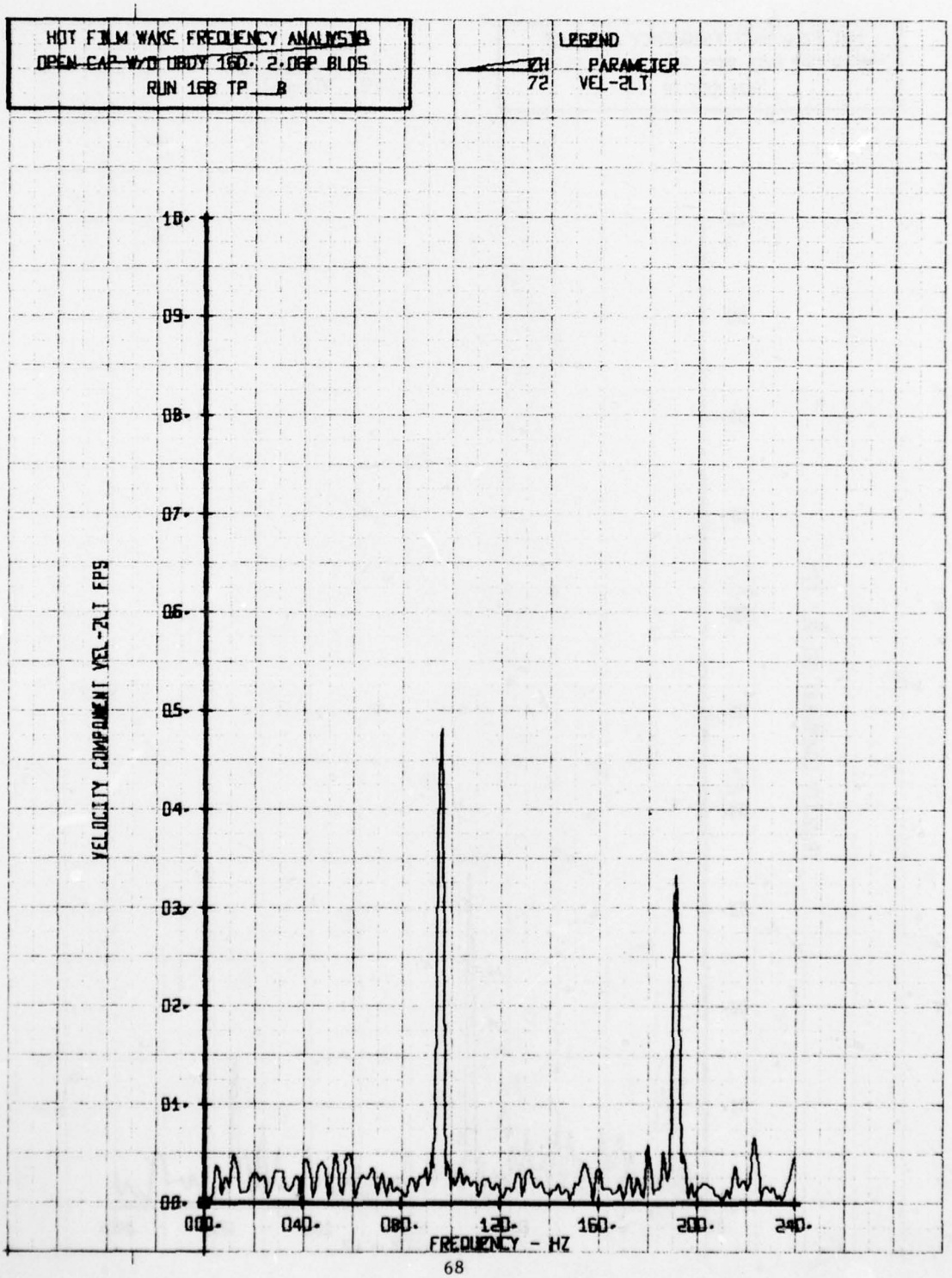
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OPEN CAP W/O UBDY 160. 2.0EP BLOS
RUN 168 TP B
LEGEND
VH PARAMETER
72 VEL-2LT
VELOCITY COMPONENT VEL-2LT FPS
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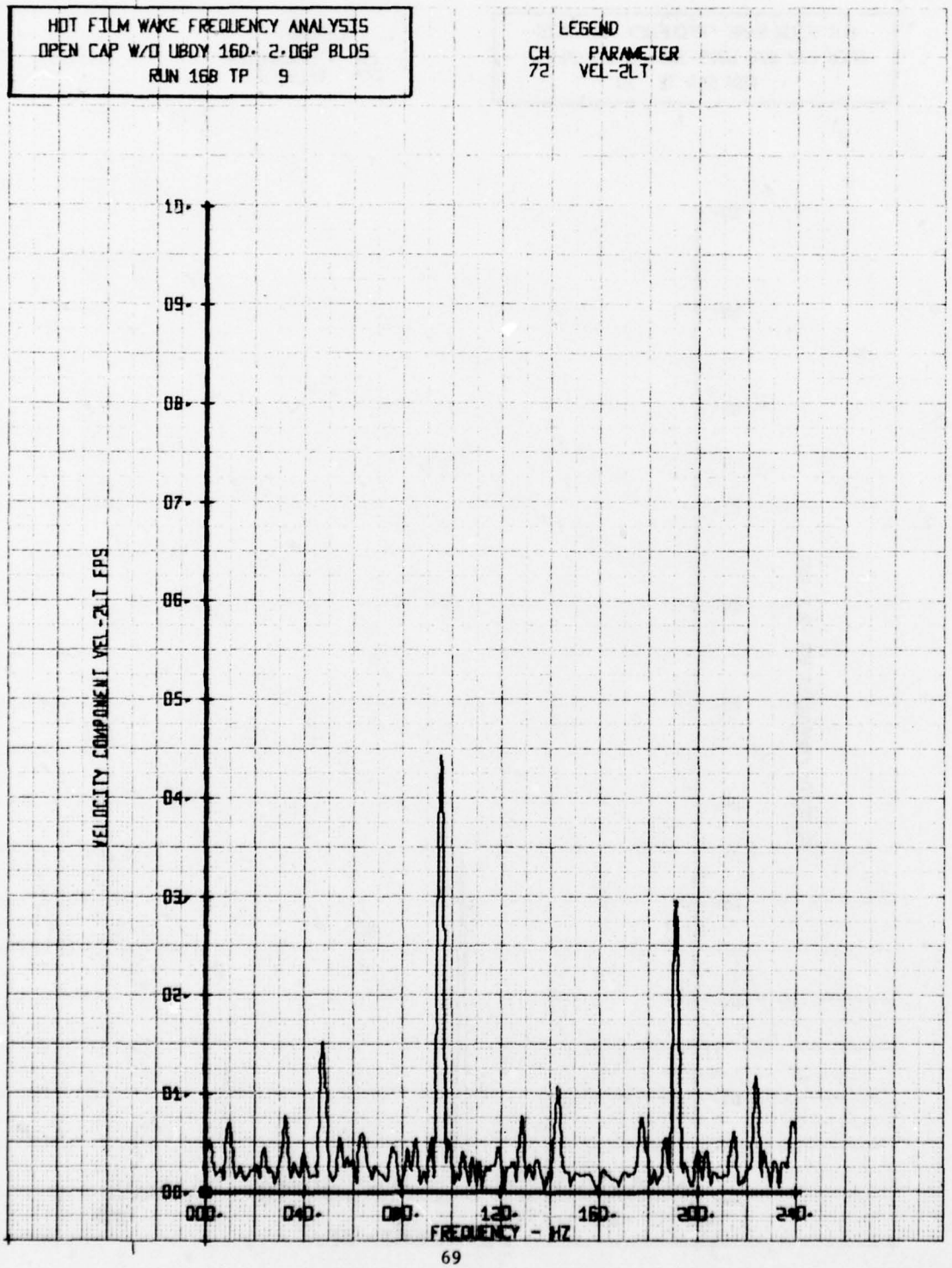
FREQUENCY - HZ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OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 168 TP 9
LEGEND
CH PARAMETER
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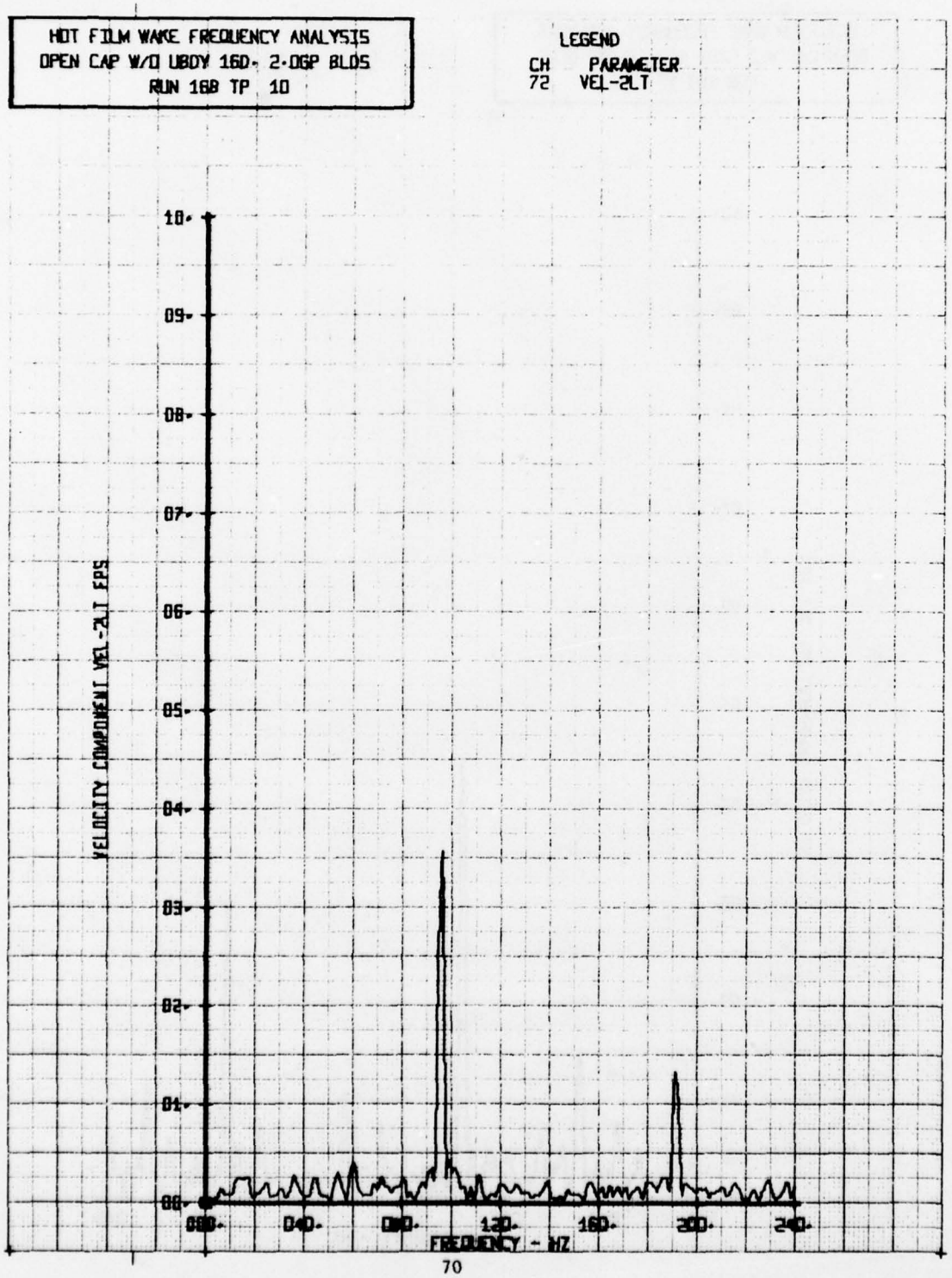
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OPEN CAP W/O UBDY 16D, 2-DGP BLDS
RUN 168 TP 10
LEGEND
CH PARAMETER
72 VEL-2LT
VELOCITY COMPONENT VEL-2LT FPS
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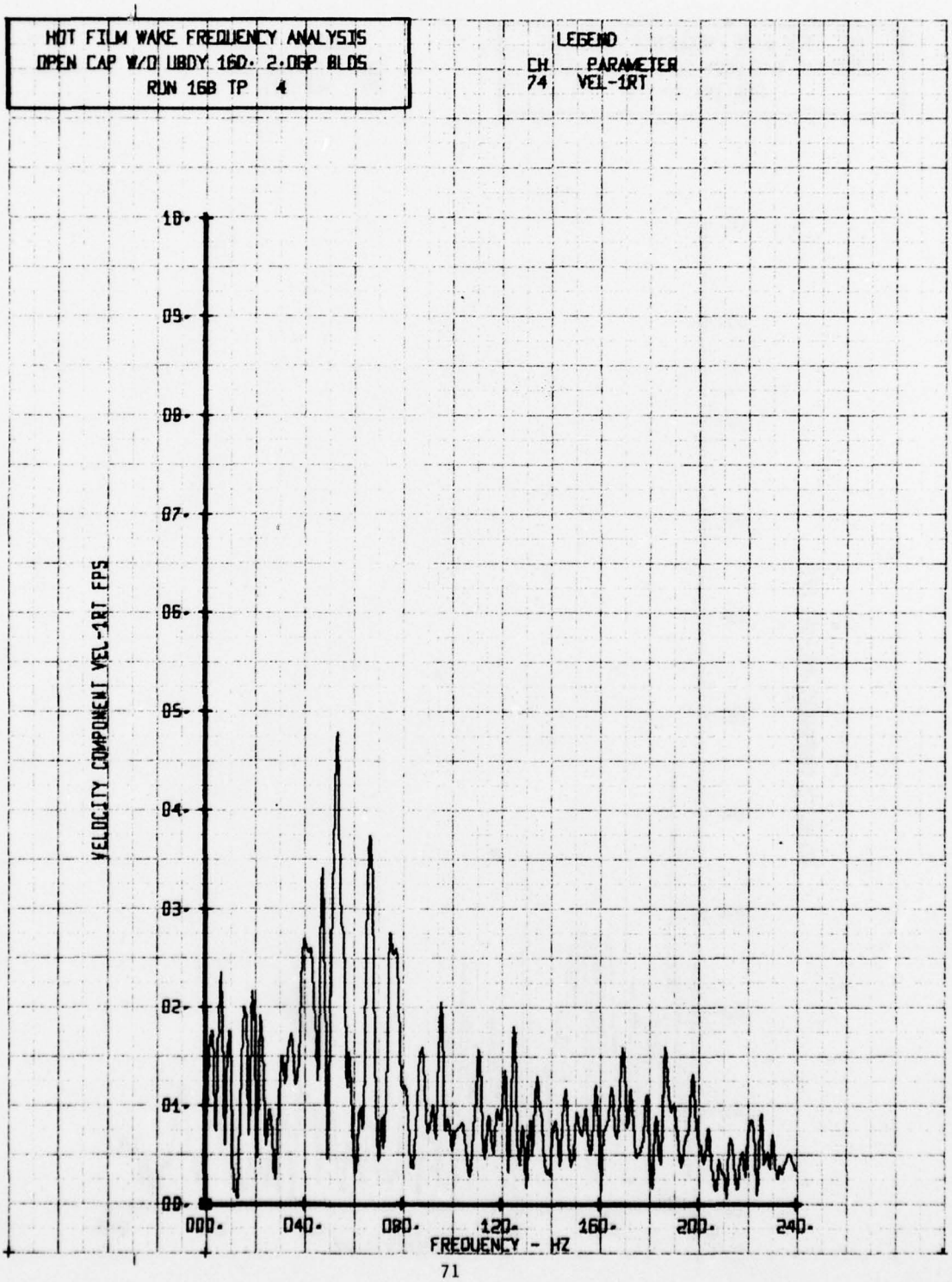
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 168 TP 4
LEGEND
CH PARAMETER
74 VEL-1RT
VELOCITY COMPONENT VEL-1RT FPS
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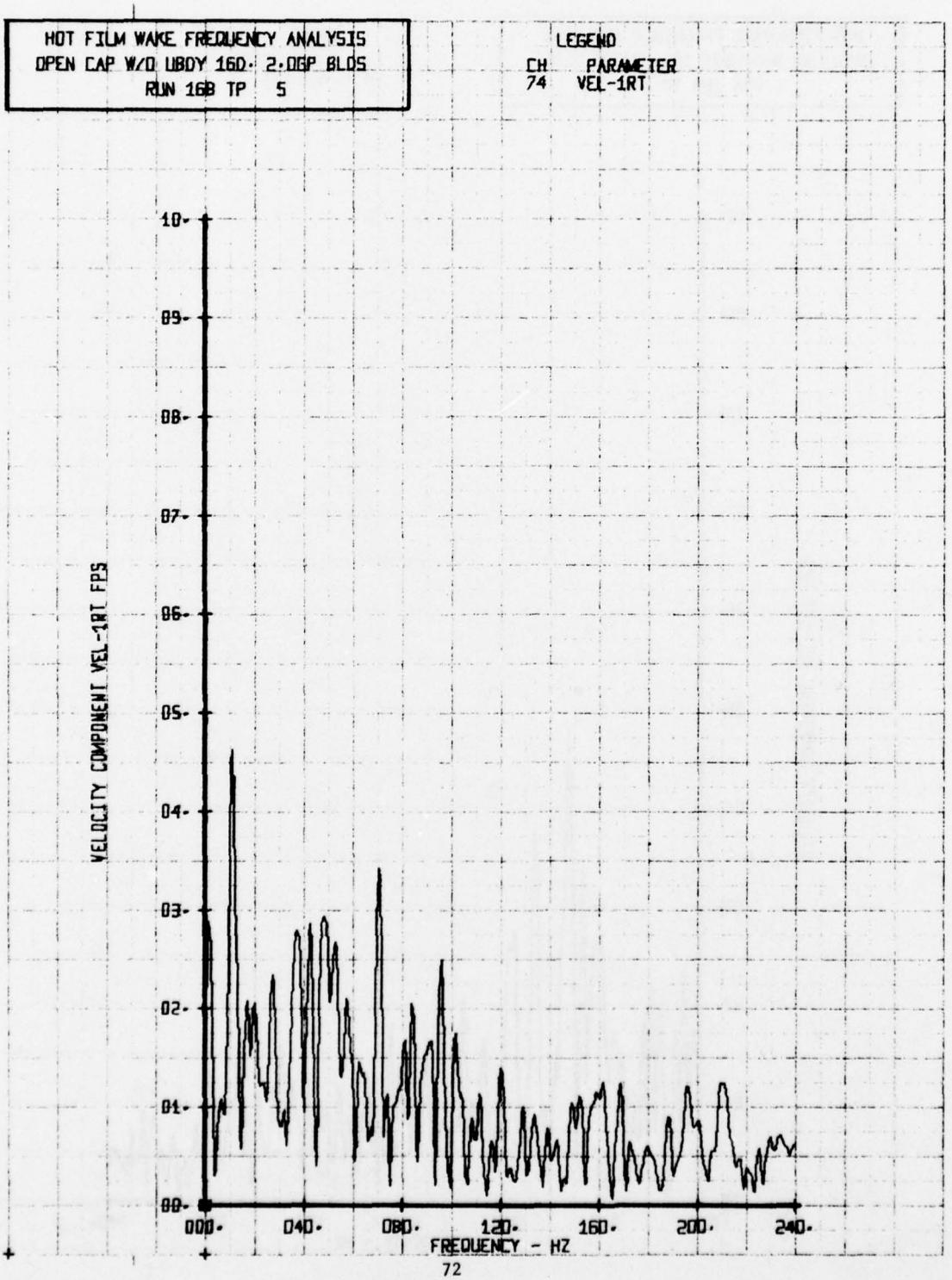
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 16B TP 5
LEGEND
CH PARAMETER
74 VEL-1RT
VELOCITY COMPONENT VEL-1RT FPS
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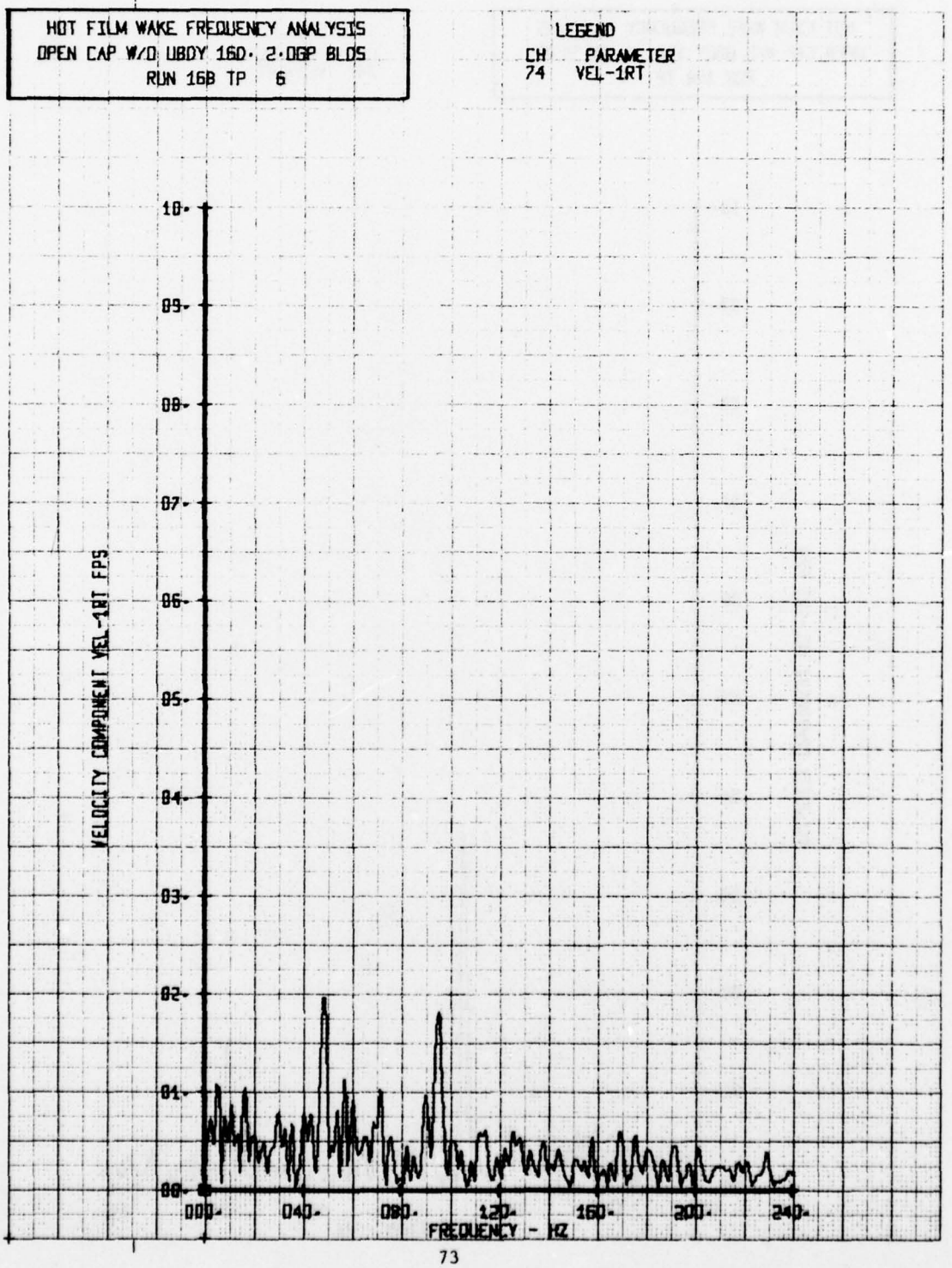
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OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 168 TP 6
LEGEND
CH PARAMETER
74 VEL-1RT
VELOCITY COMPONENT VEL-1RT FPS
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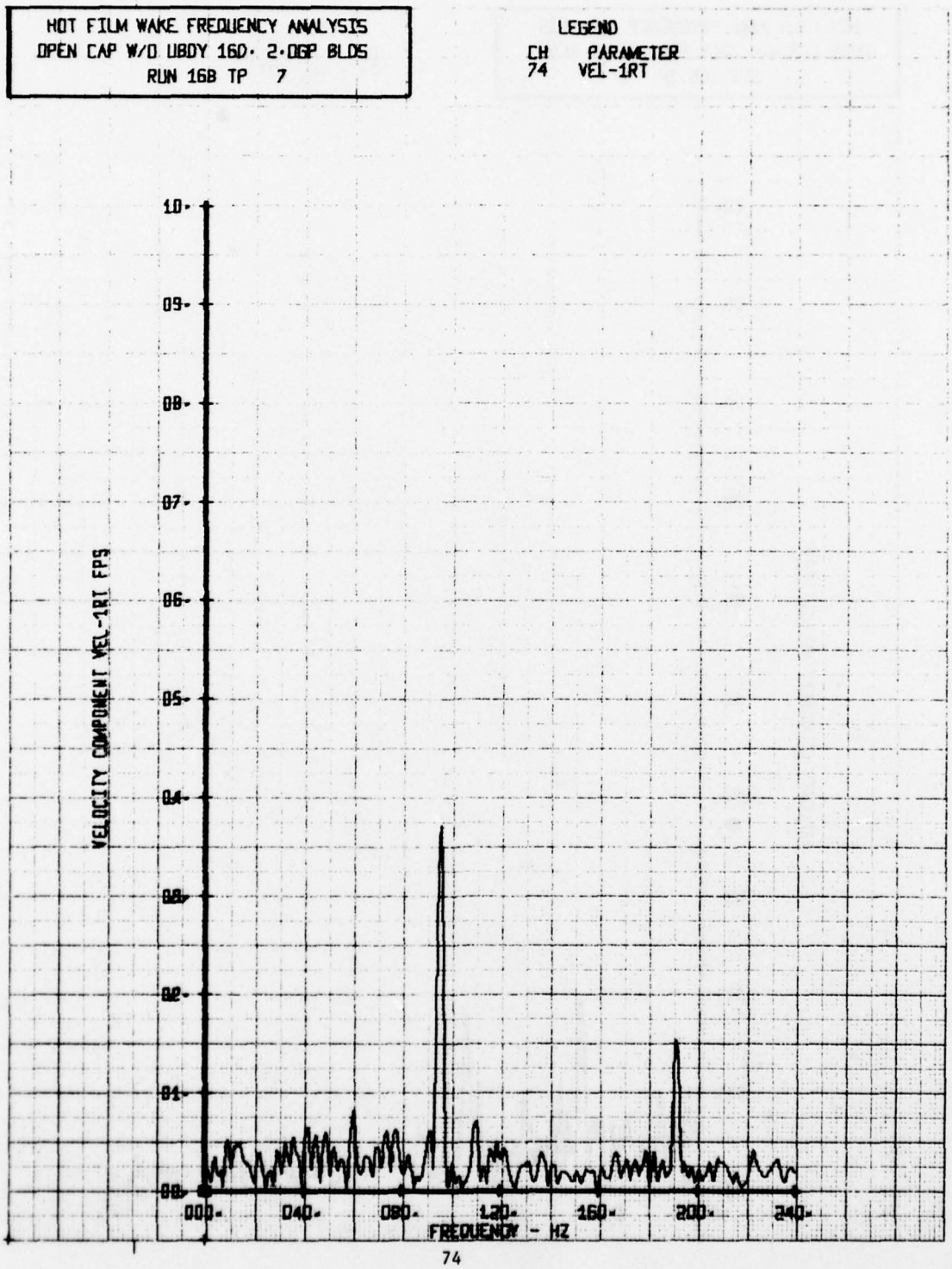
FREQUENCY - HZ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OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 16B TP 7
LEGEND
CH PARAMETER
74 VEL-1RT
VELOCITY COMPONENT VEL-1RT FPS
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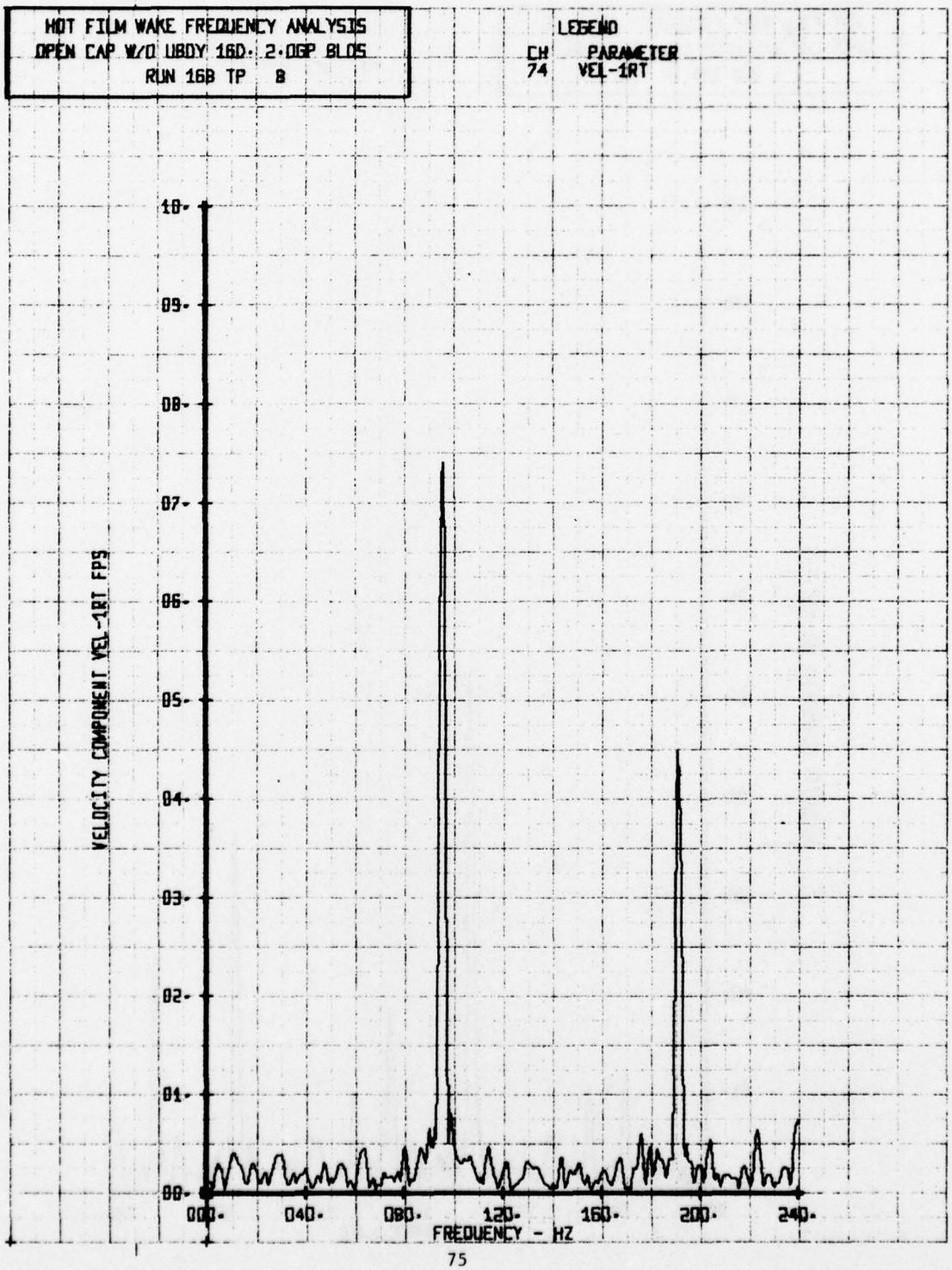
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OPEN CAP W/O UBDY 16D. 2.0GP BLDS
RUN 16B TP 8
LEGEND
CH PARAMETER
74 VEL-1RT
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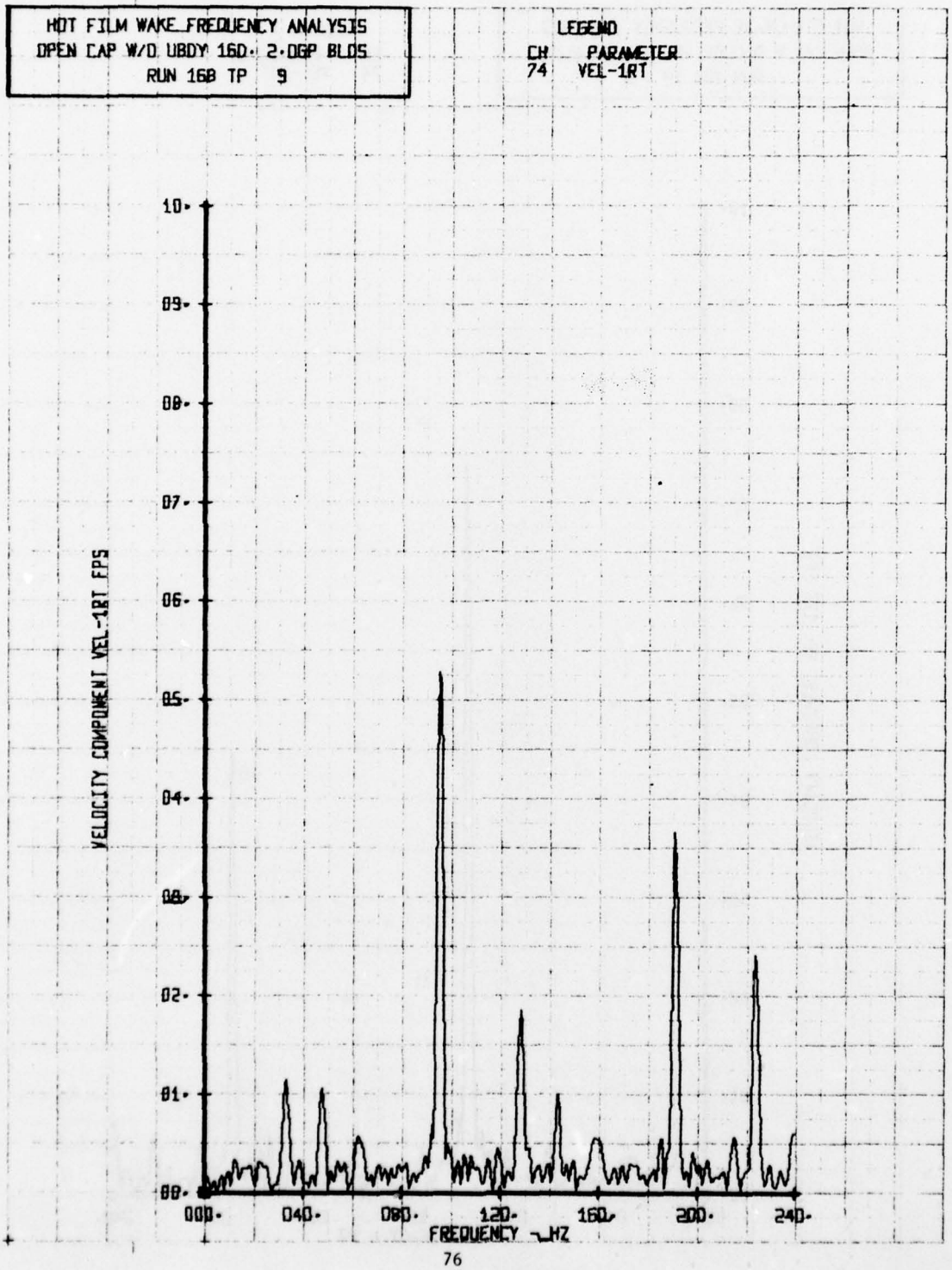
FREQUENCY - HZ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OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 168 TP 9
LEGEND
CH PARAMETER
74 VEL-1RT
VELOCITY COMPONENT VEL-1RT FPS
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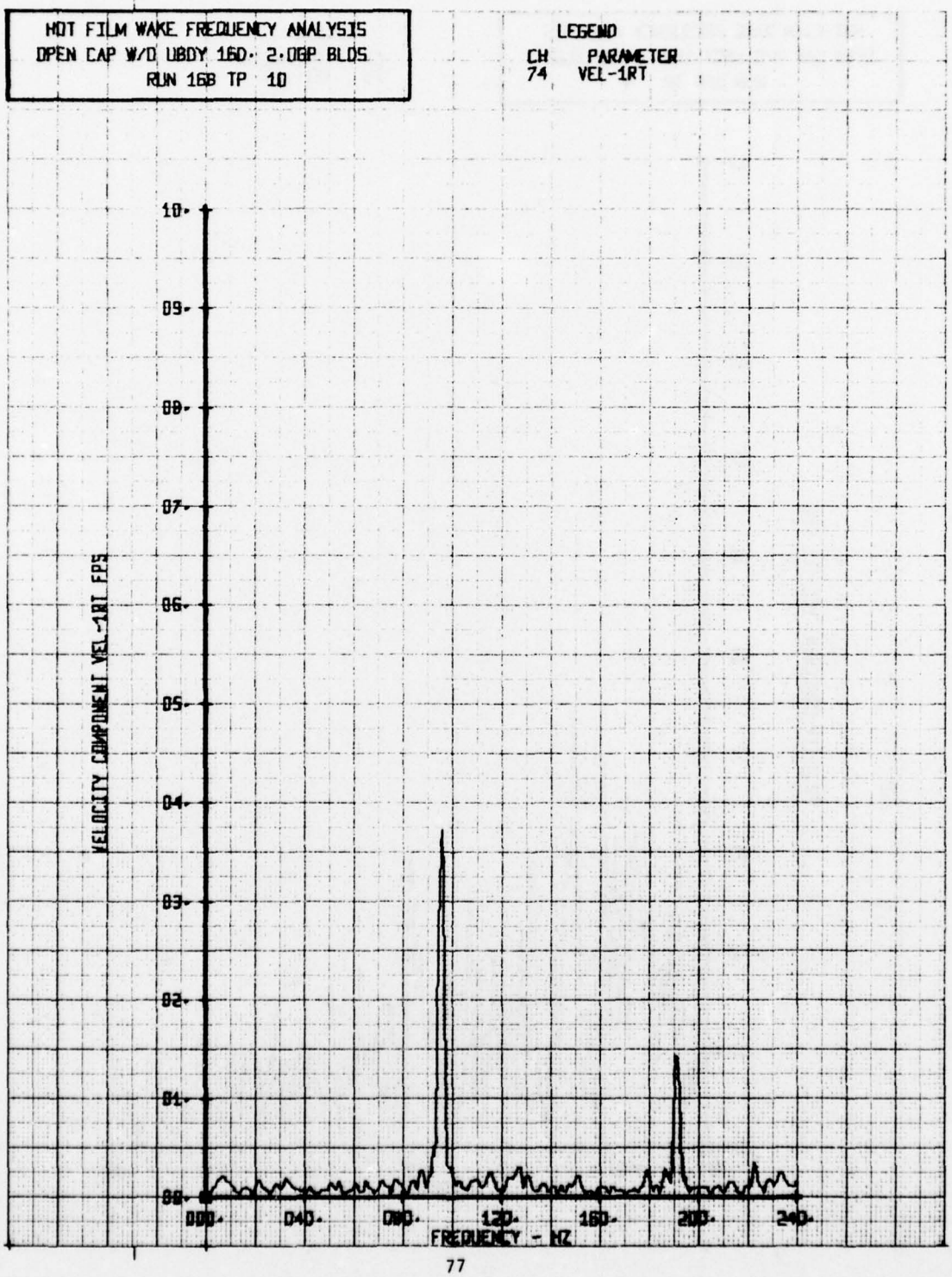
FREQUENCY - HZ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OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 168 TP 10
LEGEND
CH PARAMETER
74 VEL-1RT
VELOCITY COMPONENT VEL-1RT FPS
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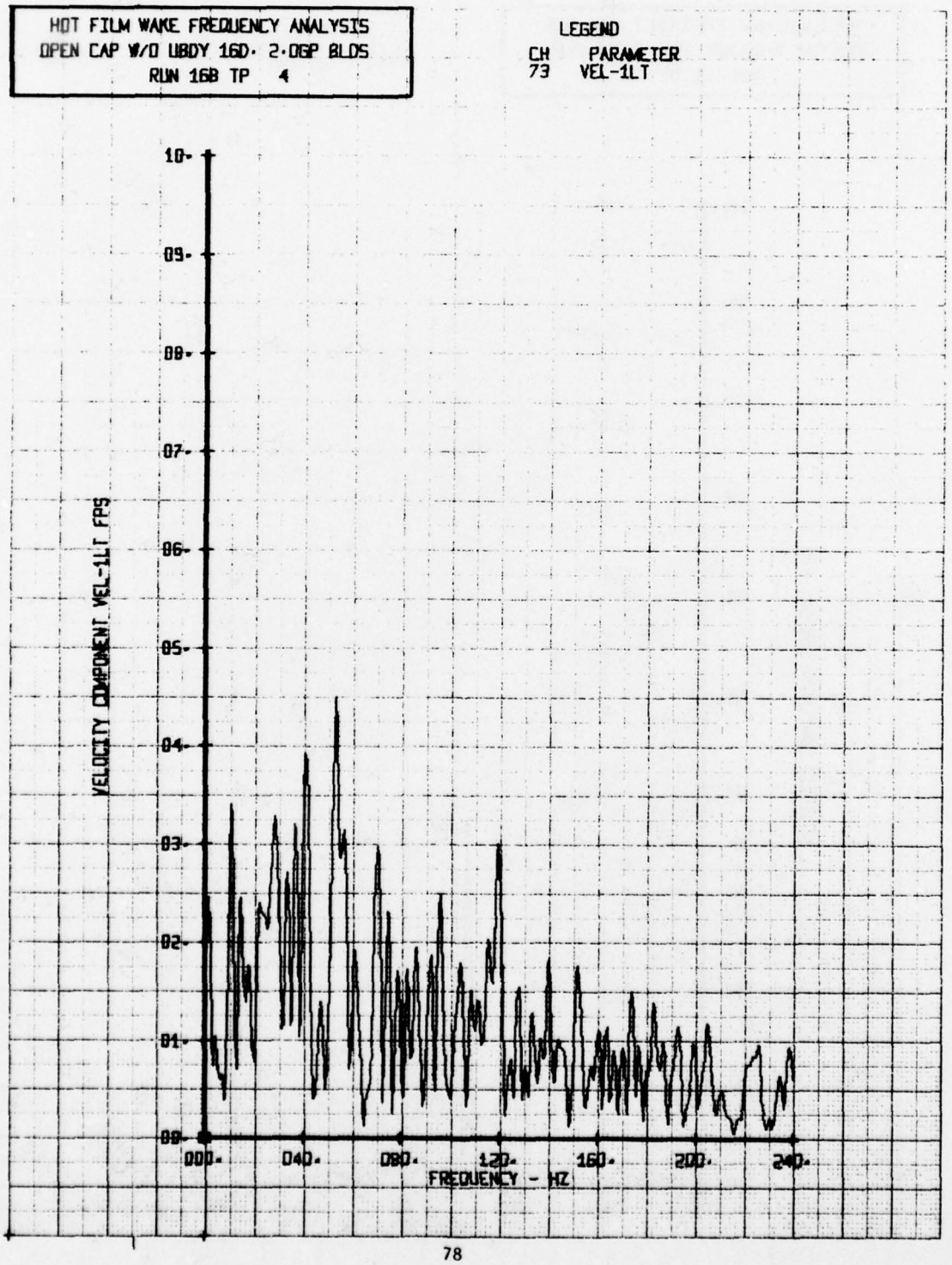
FREQUENCY - HZ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OPEN CAP W/O UBDY 16D. 2.0GP BLDS
RUN 16B TP 4
LEGEND
CH PARAMETER
73 VEL-1LT
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VELOCITY COMPONENT VEL-1LT FPS
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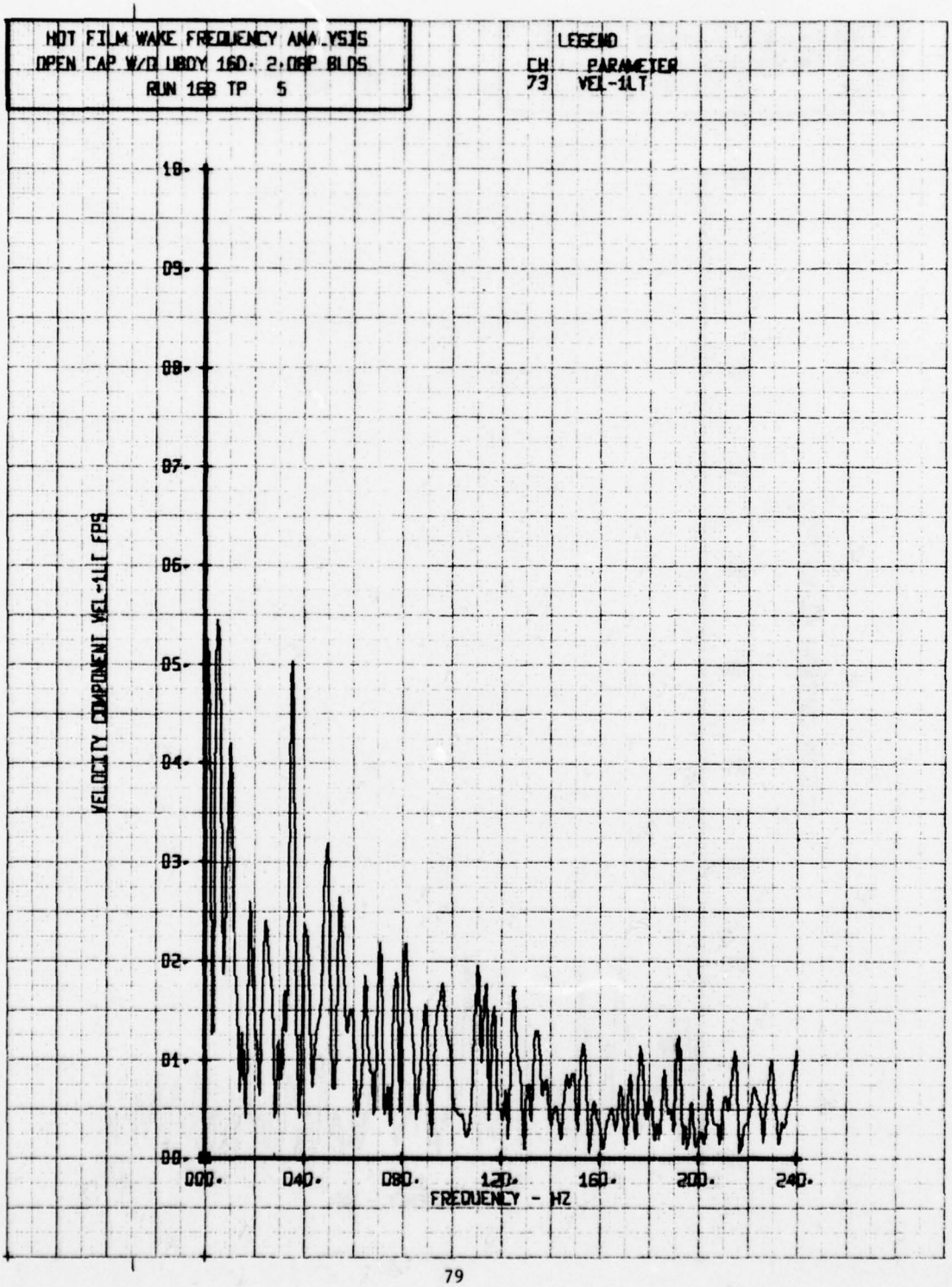
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBODY 160. 2.0BP BLDS
RUN 16B TP 5
LEGEND
CH PARAMETER
73 VEL-1LT
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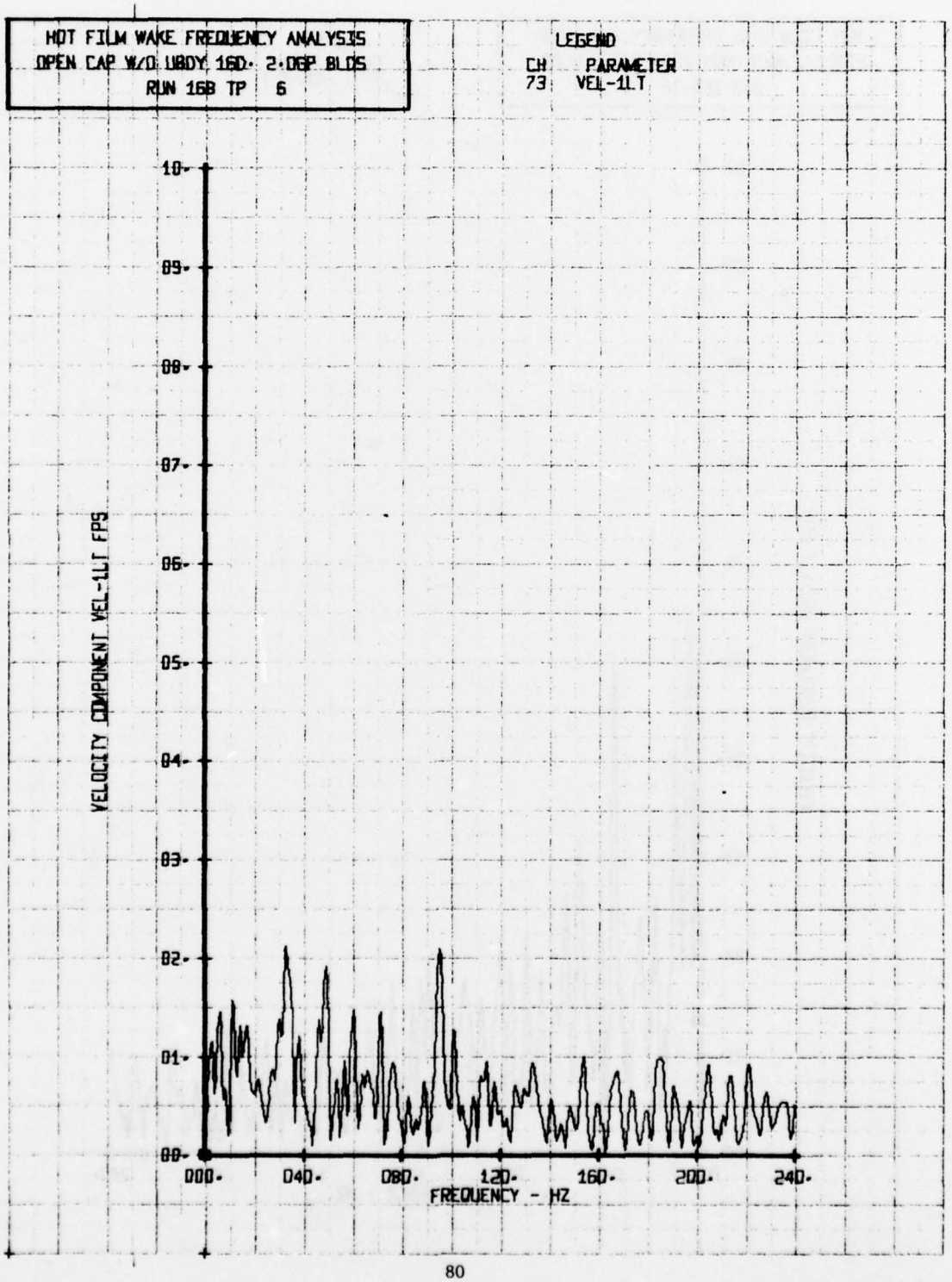
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 16D. 2.0BP BLDS
RUN 16B TP 6
LEGEND
CH PARAMETER
73 VEL-1LT
VELOCITY COMPONENT VEL-1LT FPS
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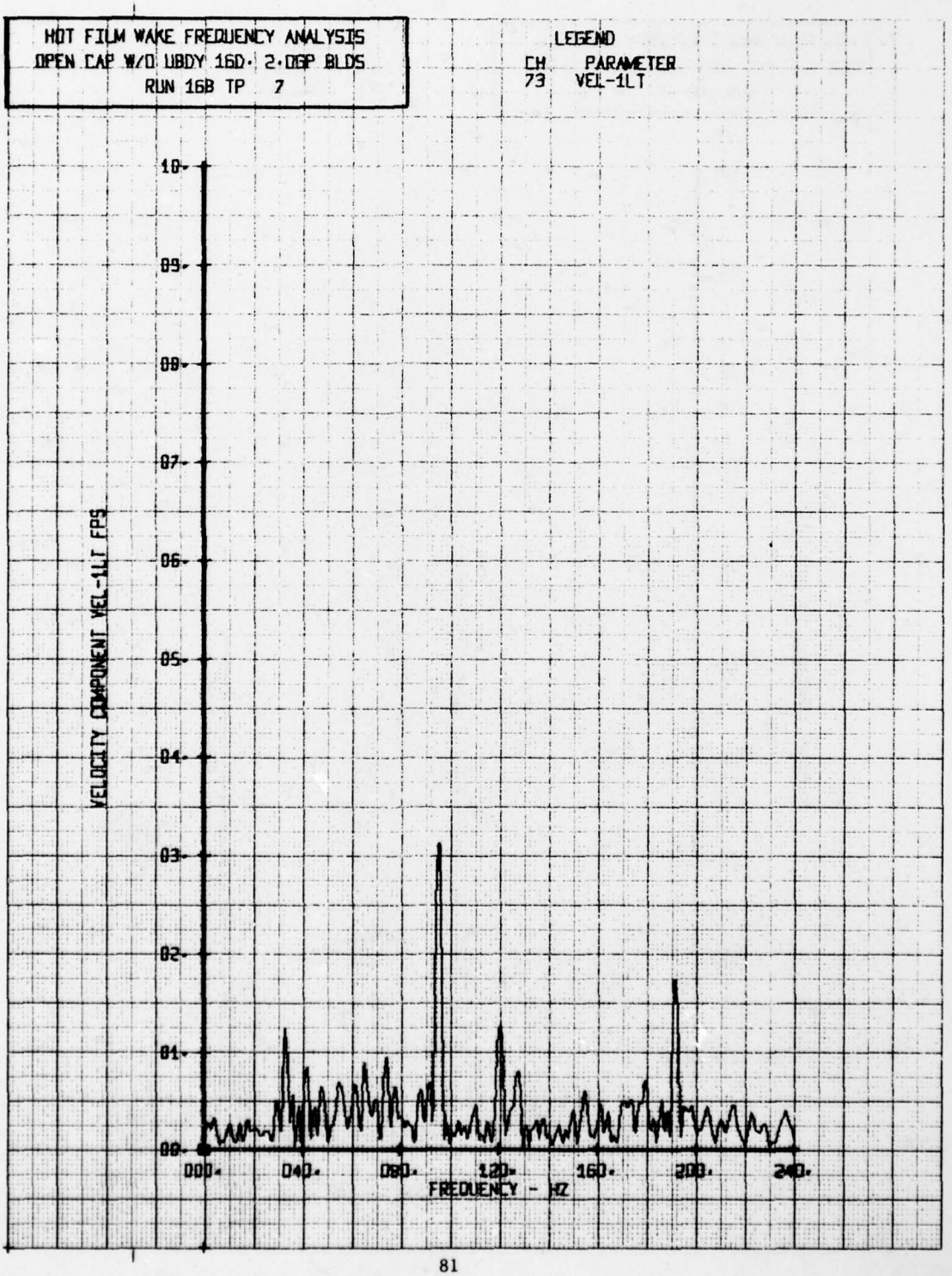
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OPEN CAP W/O UBDY 16D. 2.0GP BLDS
RUN 16B TP 7
LEGEND
CH PARAMETER
73 VEL-1LT
VELOCITY COMPONENT VEL-1LT FPS
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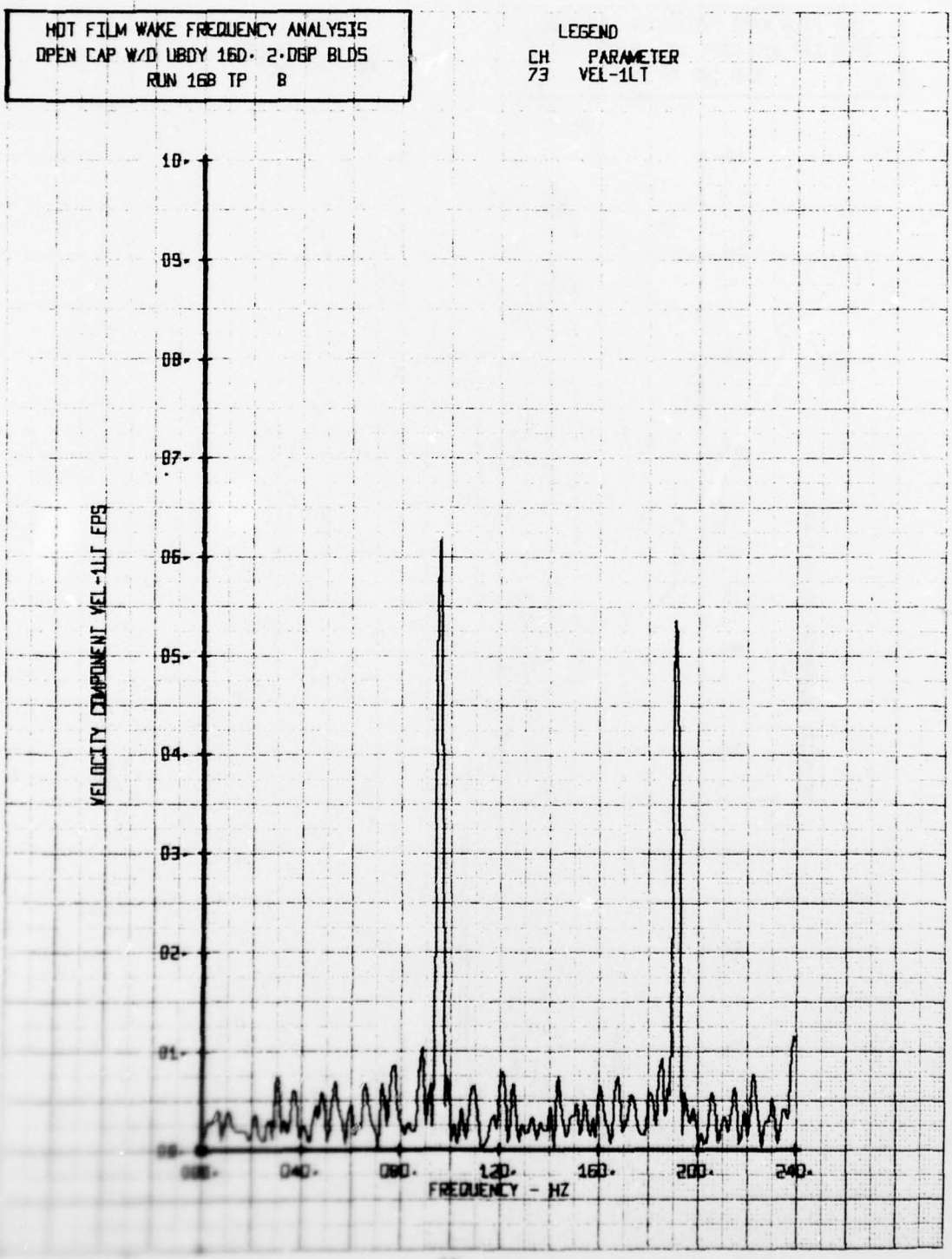
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OPEN CAP W/D UBDY 16D. 2.0GP BLDS
RUN 168 TP 8
LEGEND
CH PARAMETER
73 VEL-1LT
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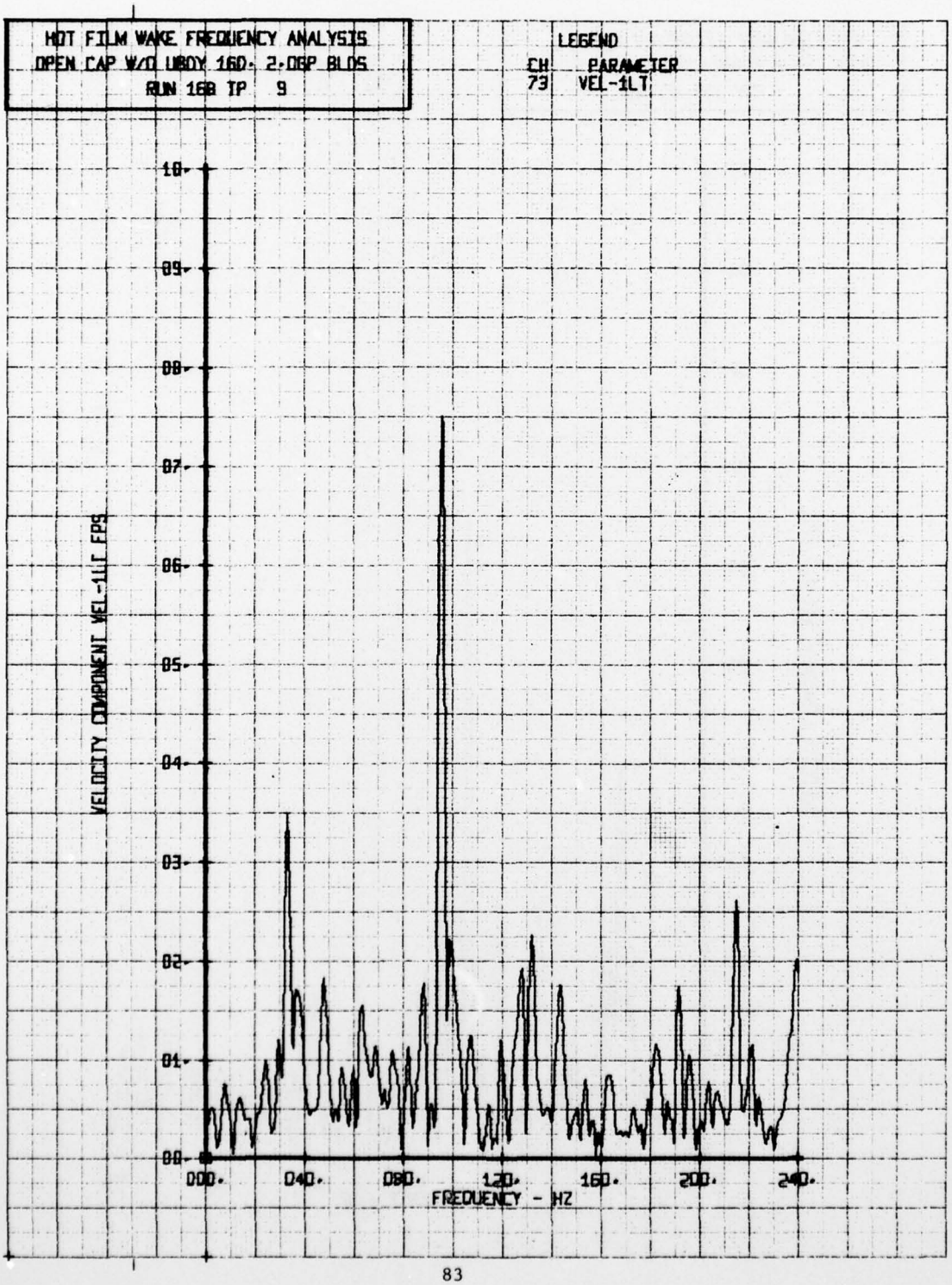
FREQUENCY - HZ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OPEN CAP W/O UBOY 160. 2.0BP BLDS
RUN 168 TP 9
LEGEND
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73 VEL-1LT
VELOCITY COMPONENT VEL-1LT FPS
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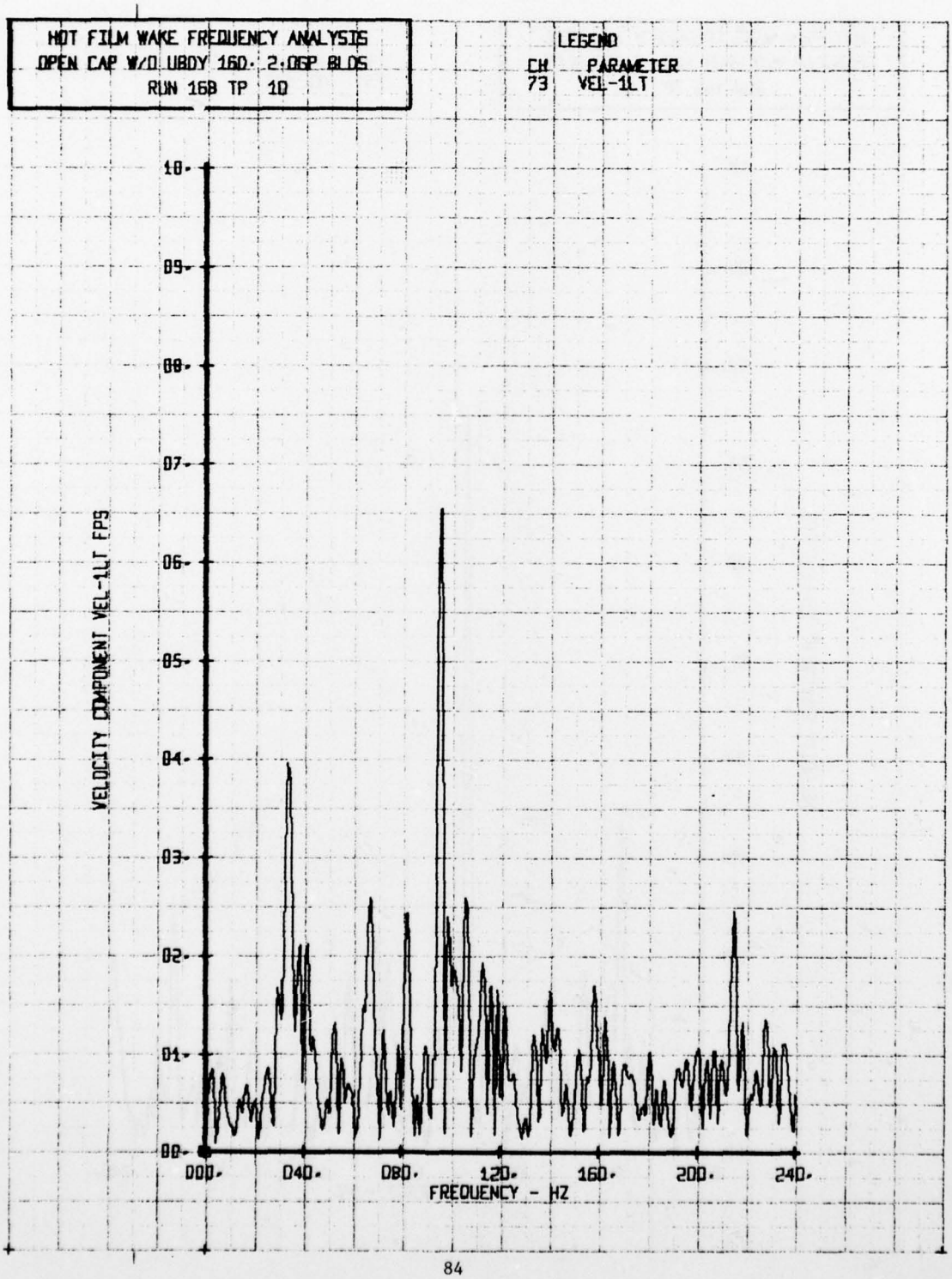
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OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 16B TP 10
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VELOCITY COMPONENT VEL-1LT FPS
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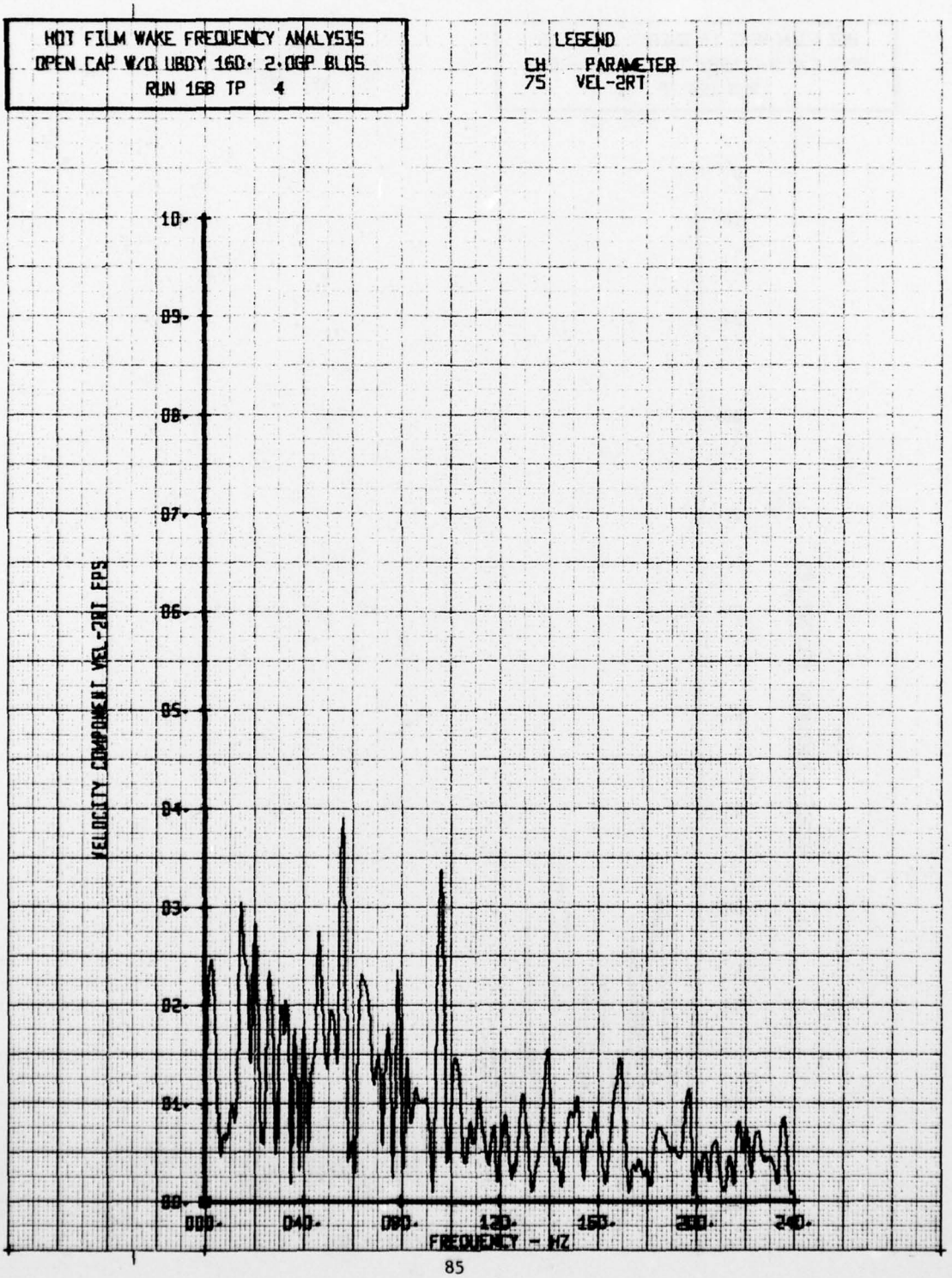
FREQUENCY - HZ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RUN 16B TP 4
LEGEND
CH PARAMETER
75 VEL-2RT
VELOCITY COMPONENT VEL-2RT FPS
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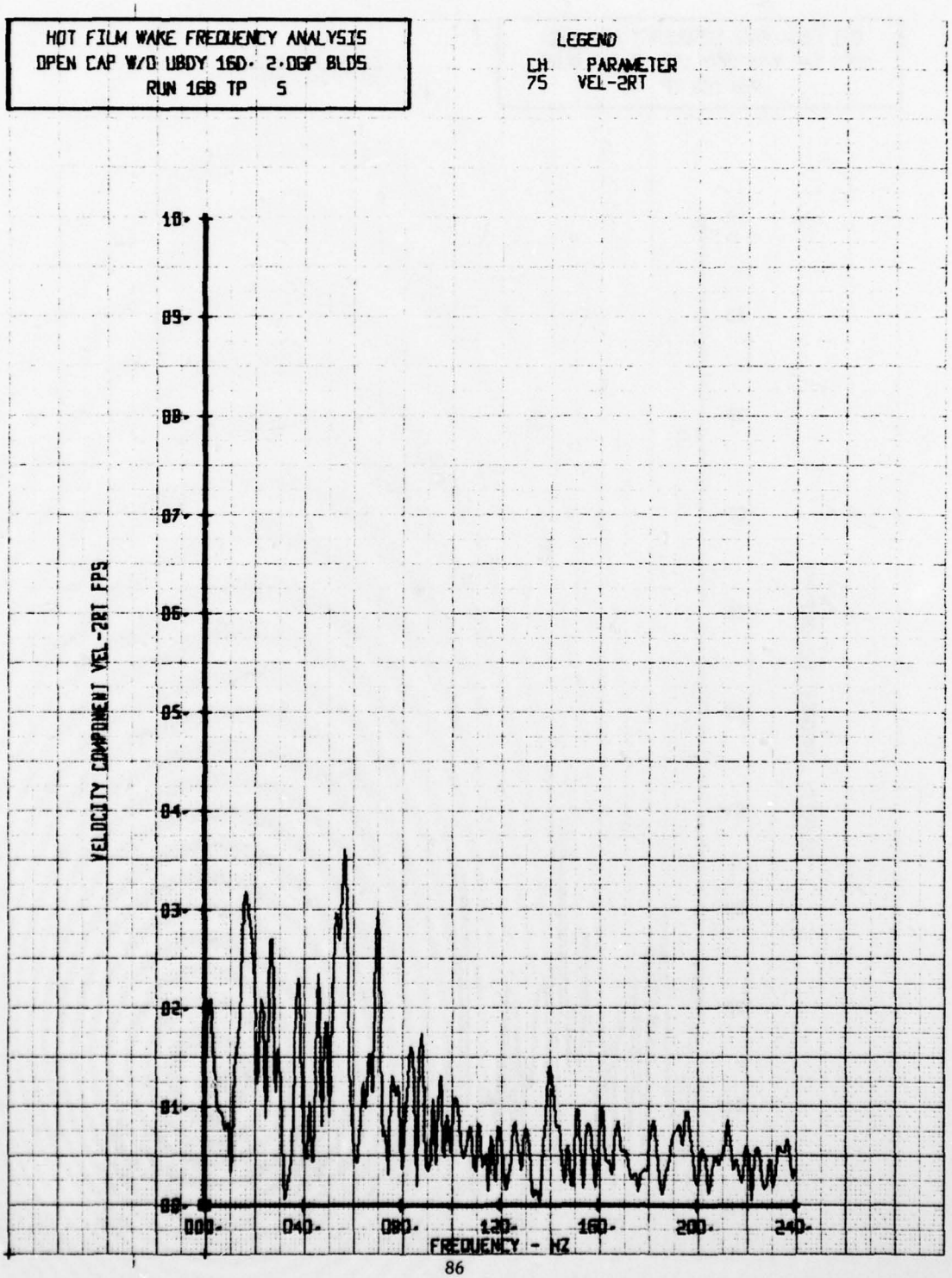
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OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 16B TP 5
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CH PARAMETER
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VELOCITY COMPONENT VEL-2RT FPS
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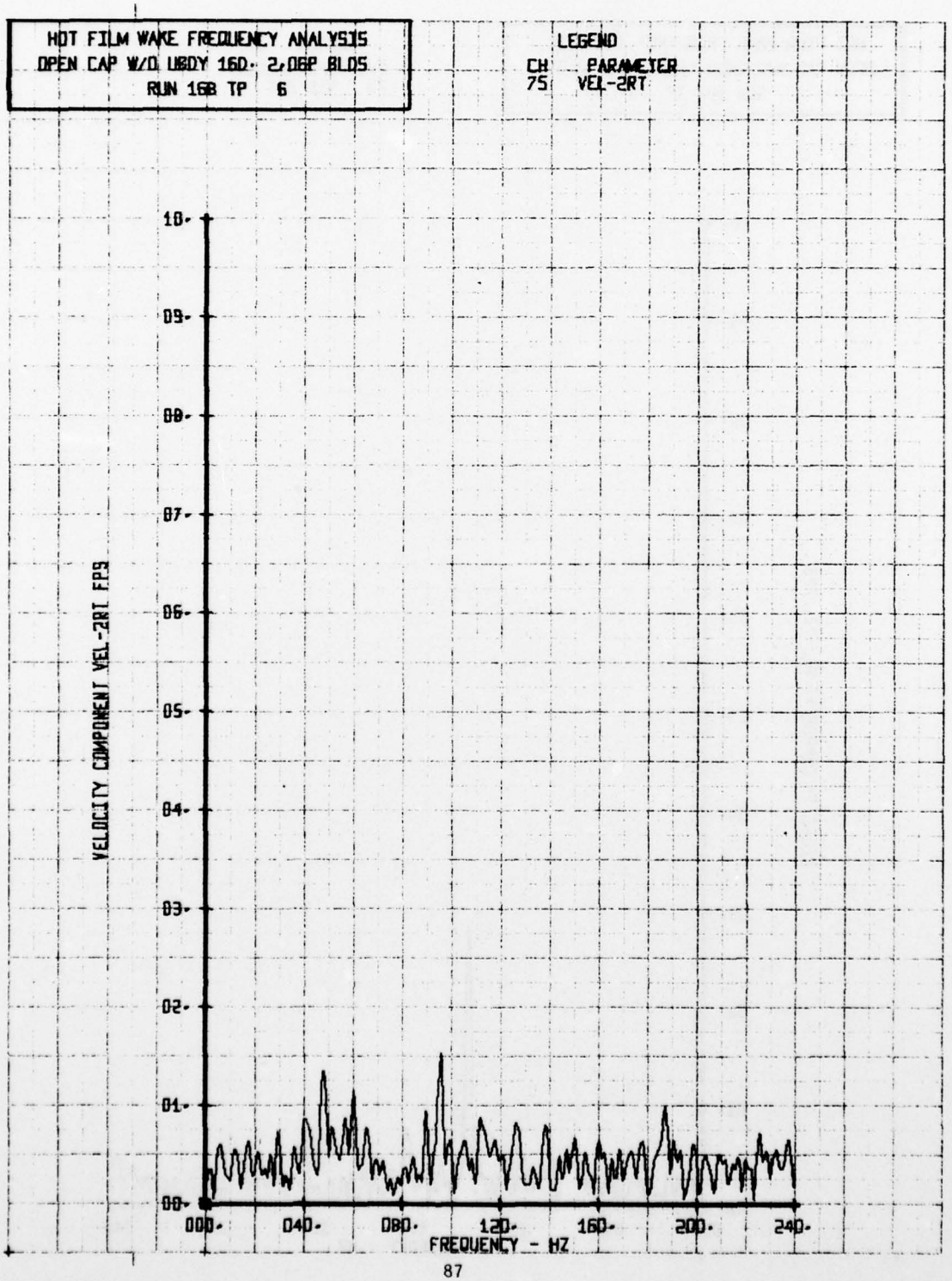
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OPEN CAP W/O UBDY 16D. 2.0BP BLDS
RUN 16B TP 6
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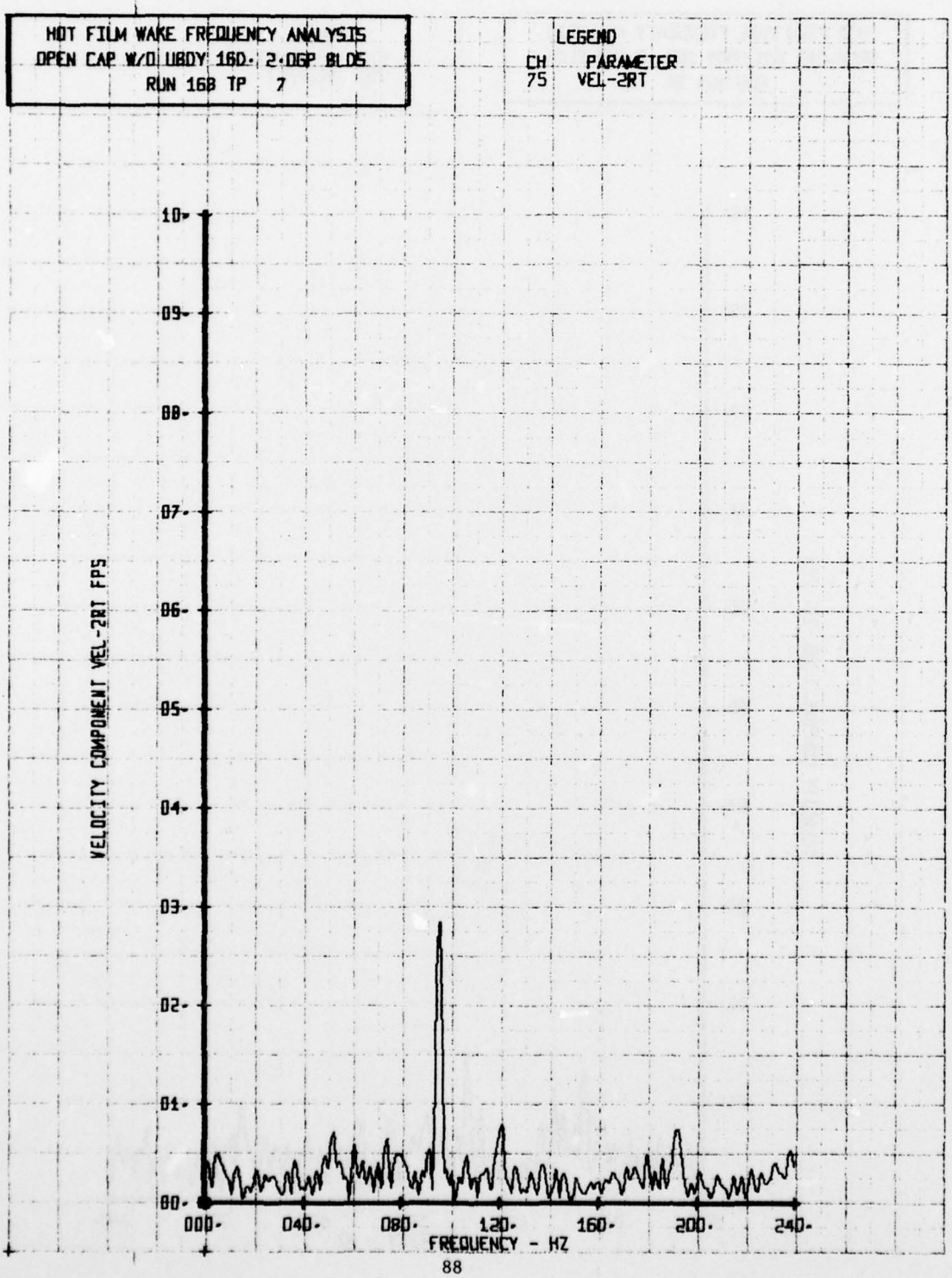
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VELOCITY COMPONENT VEL-2RT FPS
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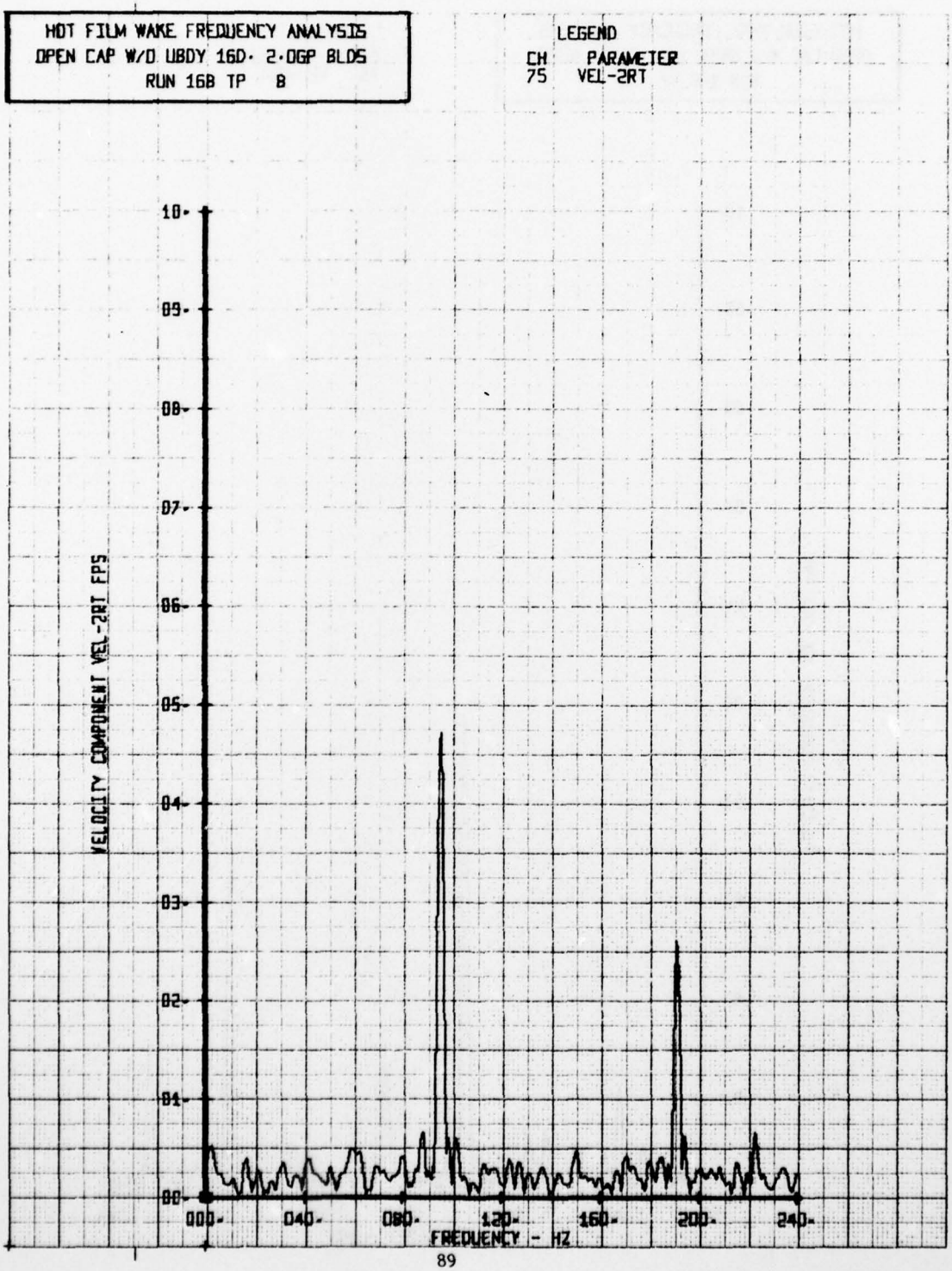
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RUN 16B TP 8
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VELOCITY COMPONENT VEL-2RT FPS
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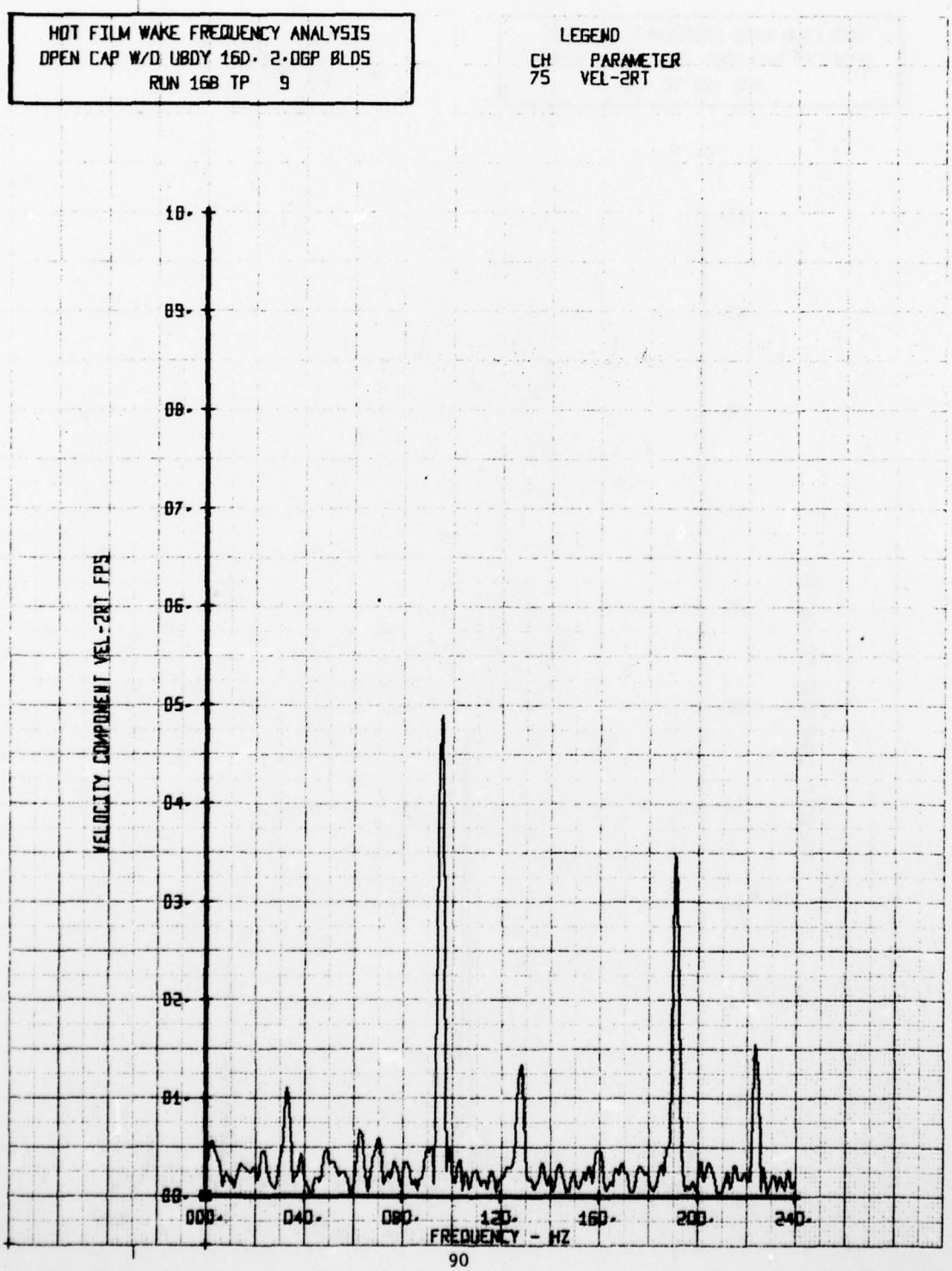
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 168 TP 9
LEGEND
CH PARAMETER
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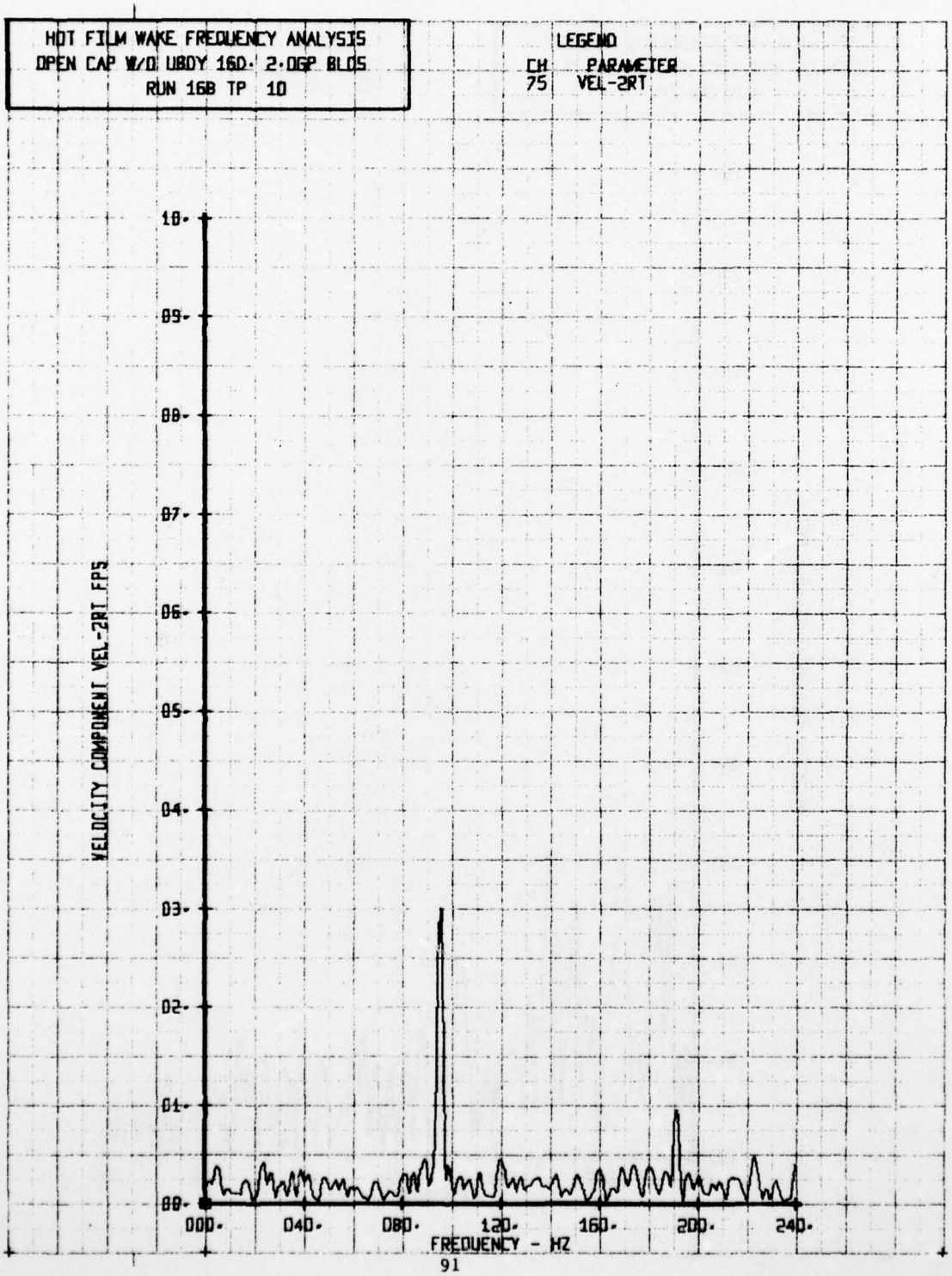
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OPEN CAP W/O UBDY 160. 2.0GP BLOS
RUN 16B TP 10
LEGEND
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75 VEL-2RT
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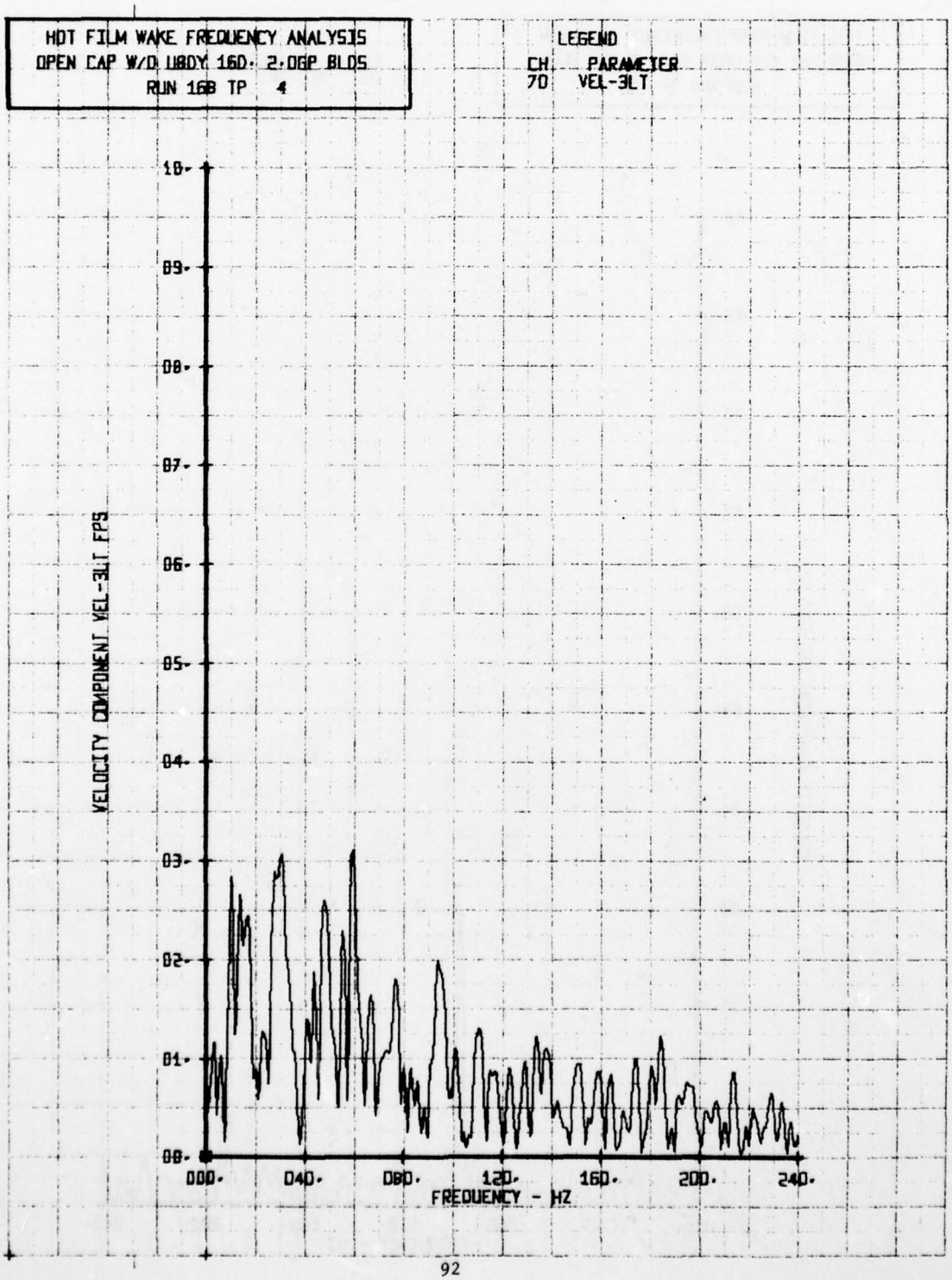
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RUN 16B TP 4
LEGEND
CH PARAMETER
7D VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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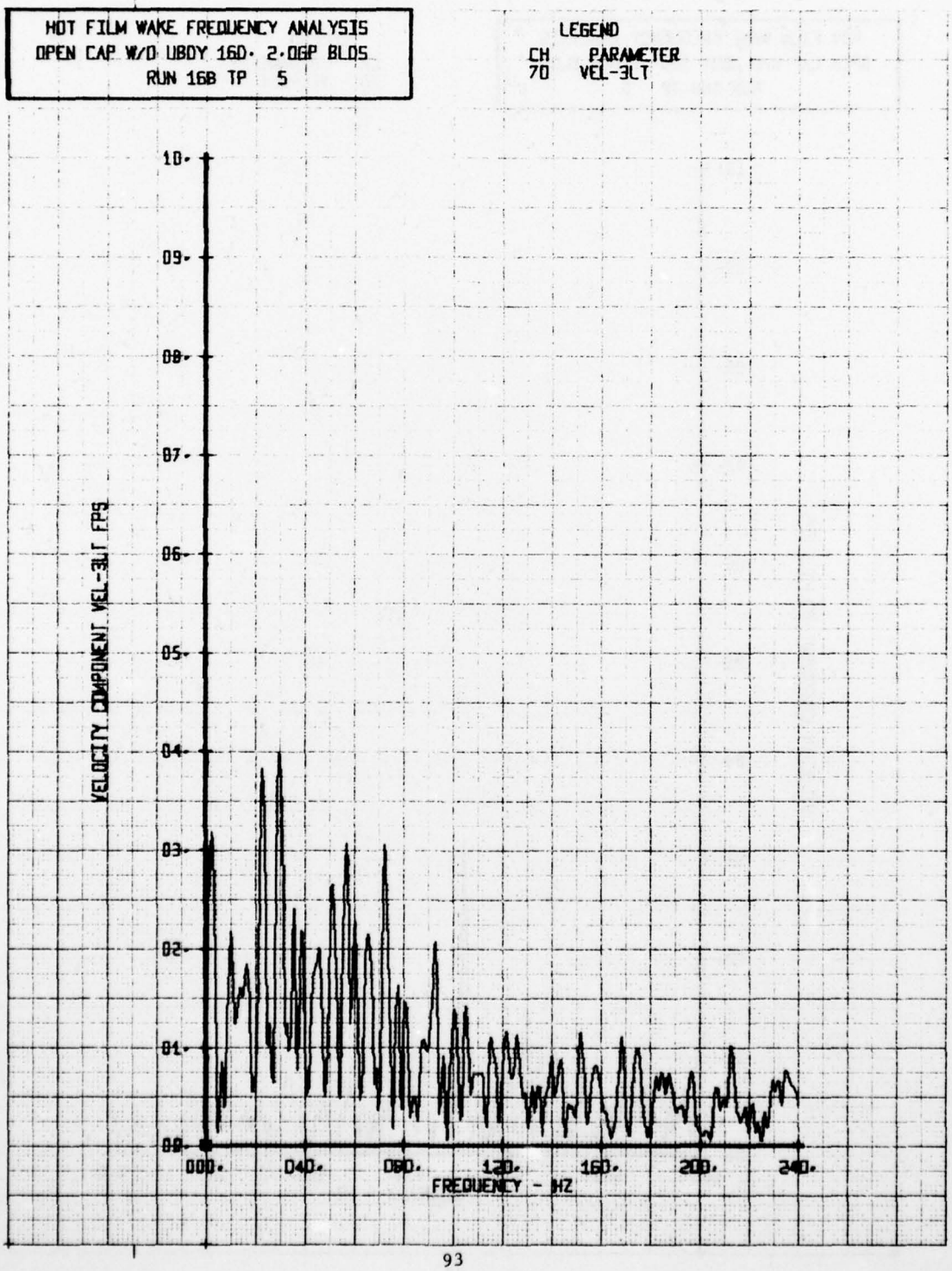
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OPEN CAP W/O UBDY 160. 2.0GP BLDS
RUN 16B TP 5
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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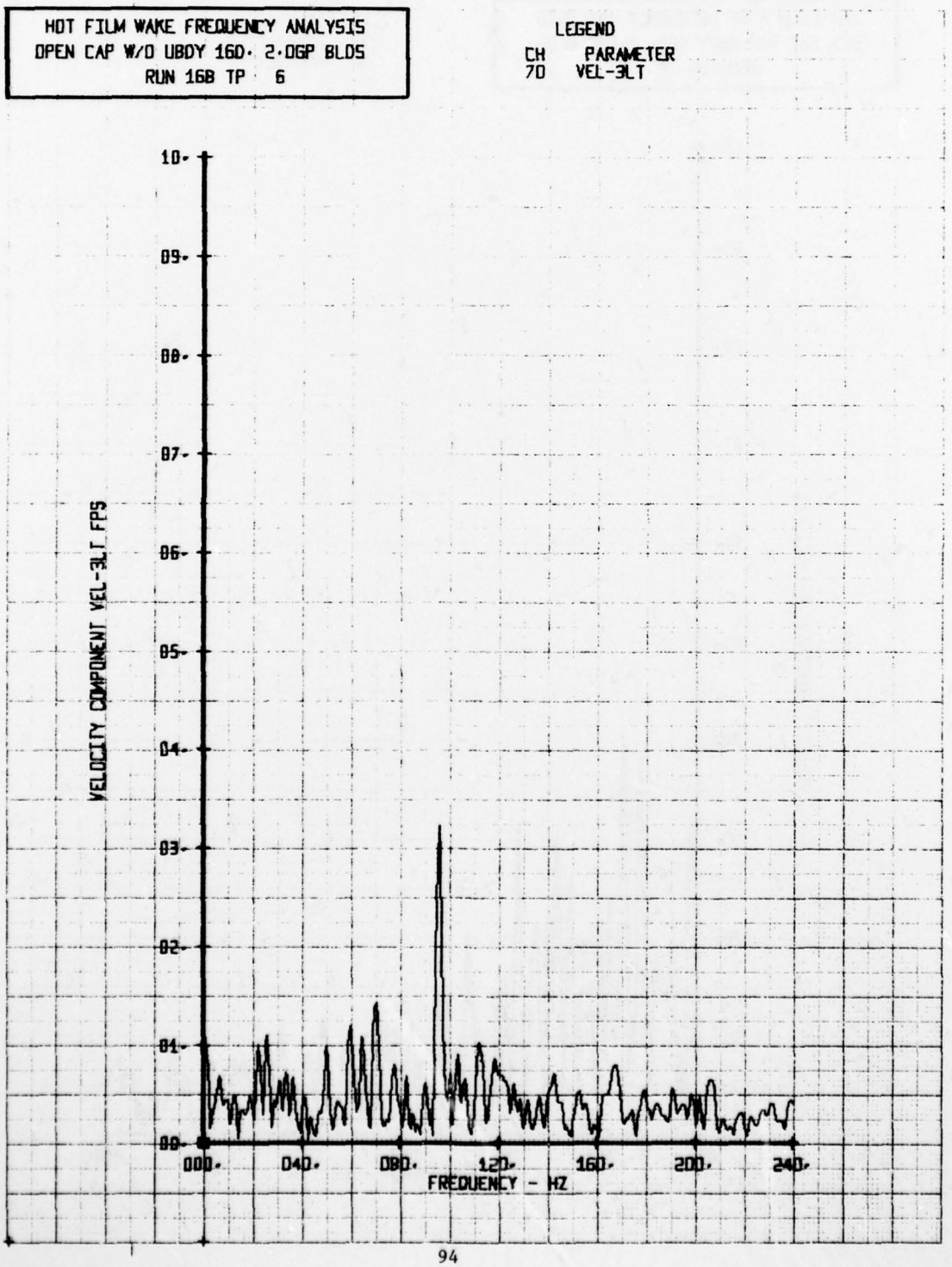
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RUN 168 TP 6
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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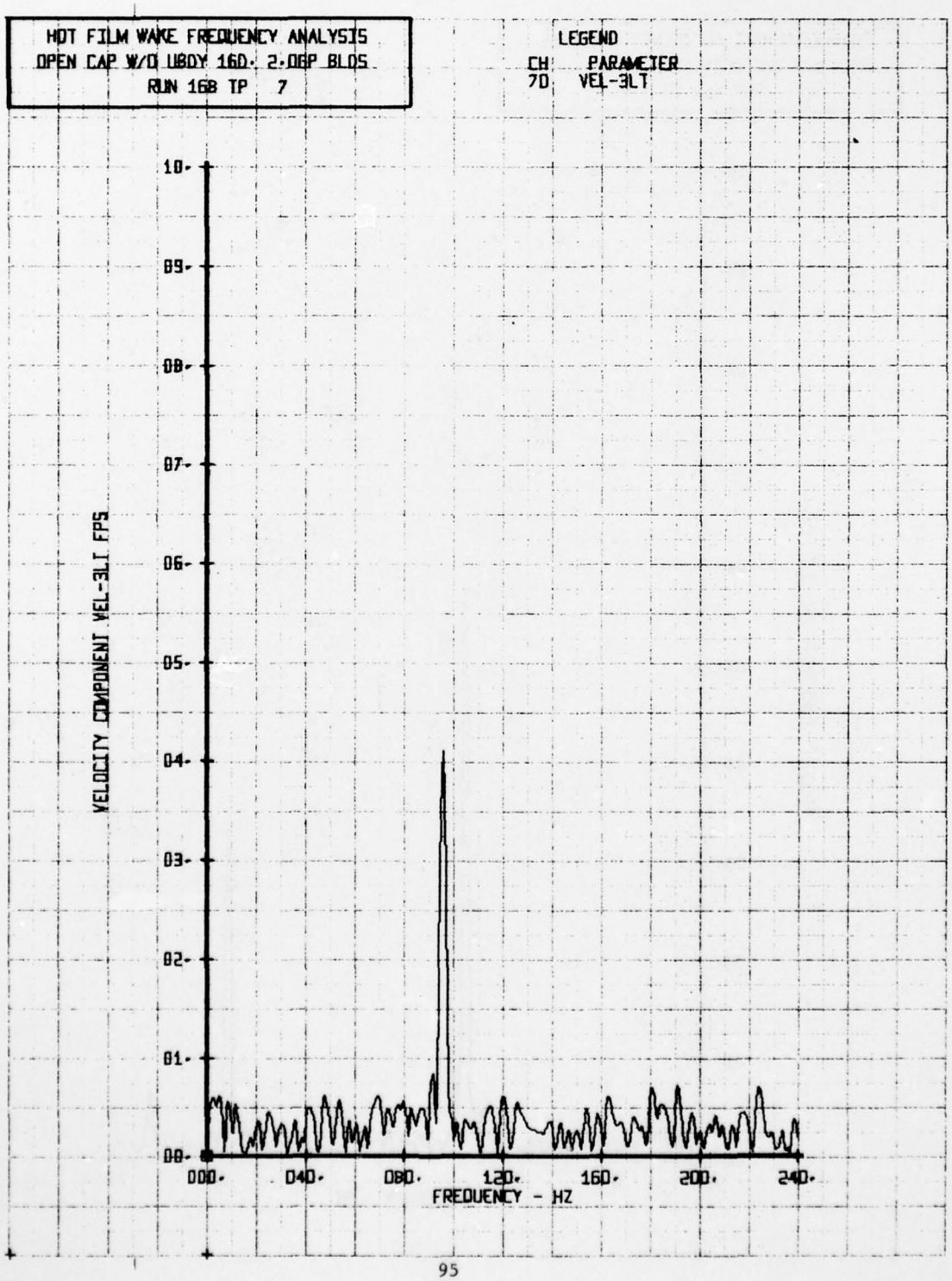
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OPEN CAP W/O UBDY 16D. 2.0BP BLDS
RUN 16B TP 7
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7D VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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AD-A061 995 BOEING VERTOL CO PHILADELPHIA PA F/G 1/3
INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONFI--ETC(U)
SEP 78 P F SHERIDAN DAAJ02-77-C-0020
UNCLASSIFIED USARTL-TR-78-23H NL

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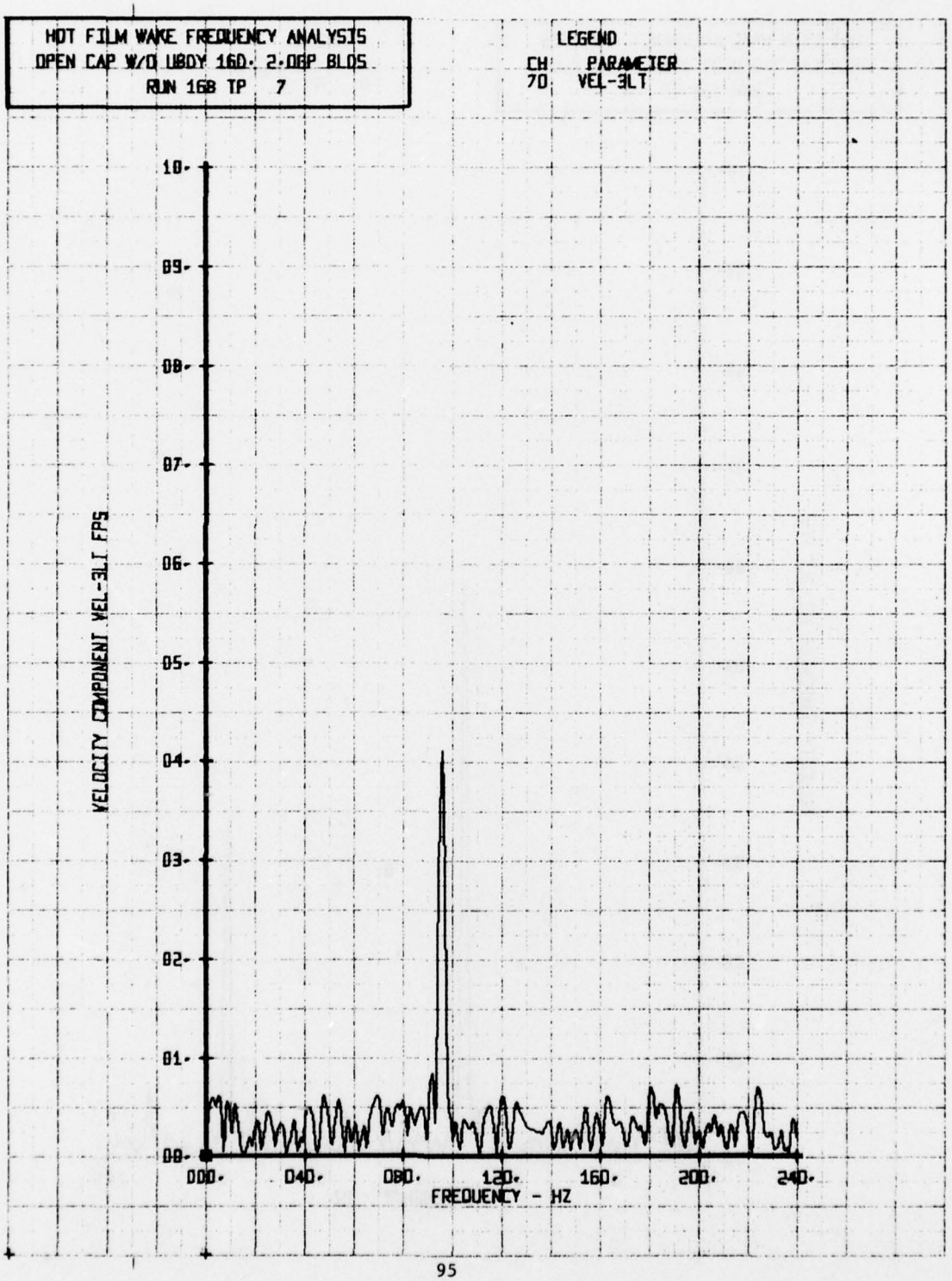
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OPEN CAP W/O UBDY 16D. 2.0BP BLDS
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LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LI FPS
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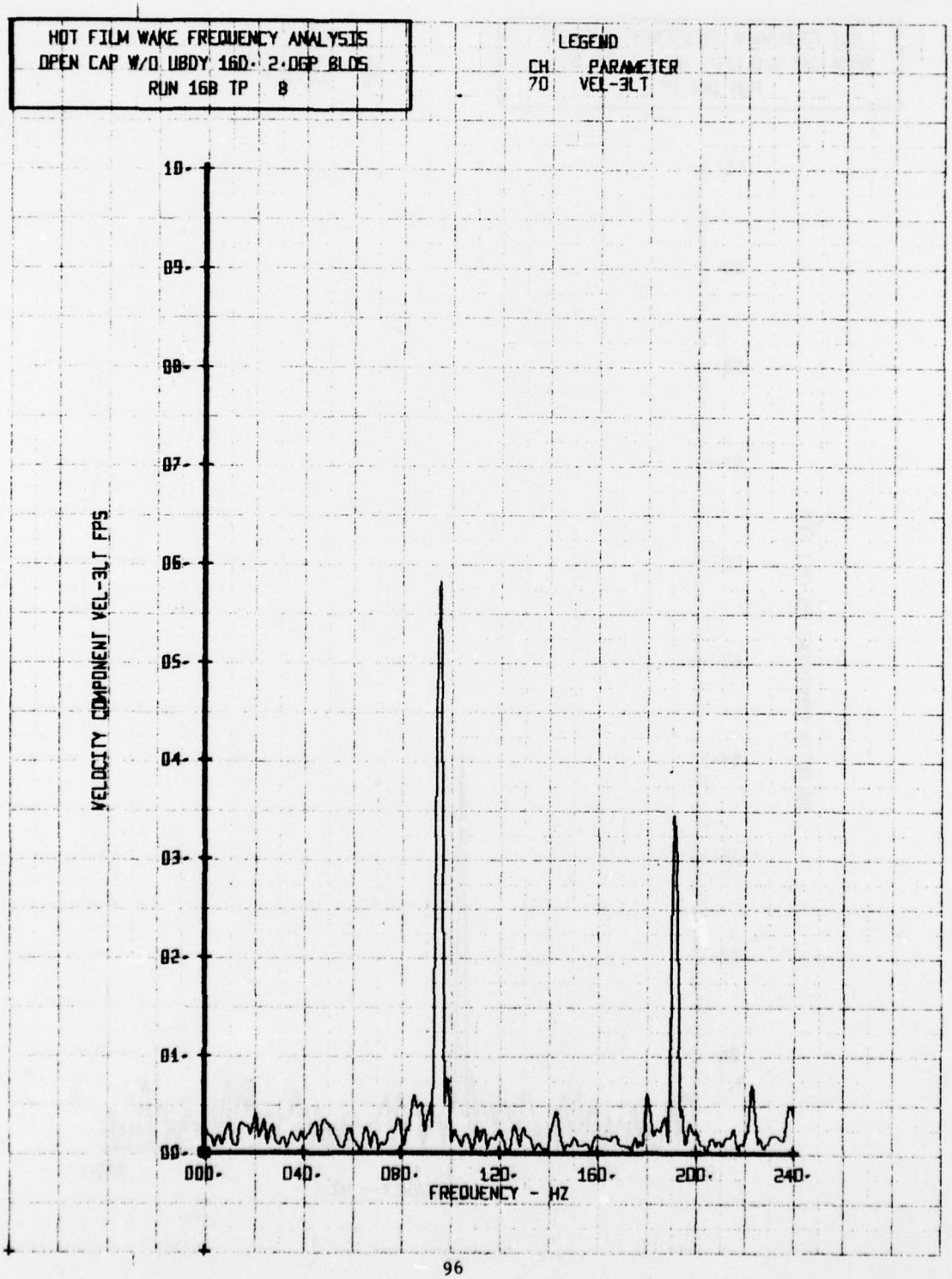
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 16D. 2.0GP BLDS
RUN 16B TP 8
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VELOCITY COMPONENT VEL-3LT FPS
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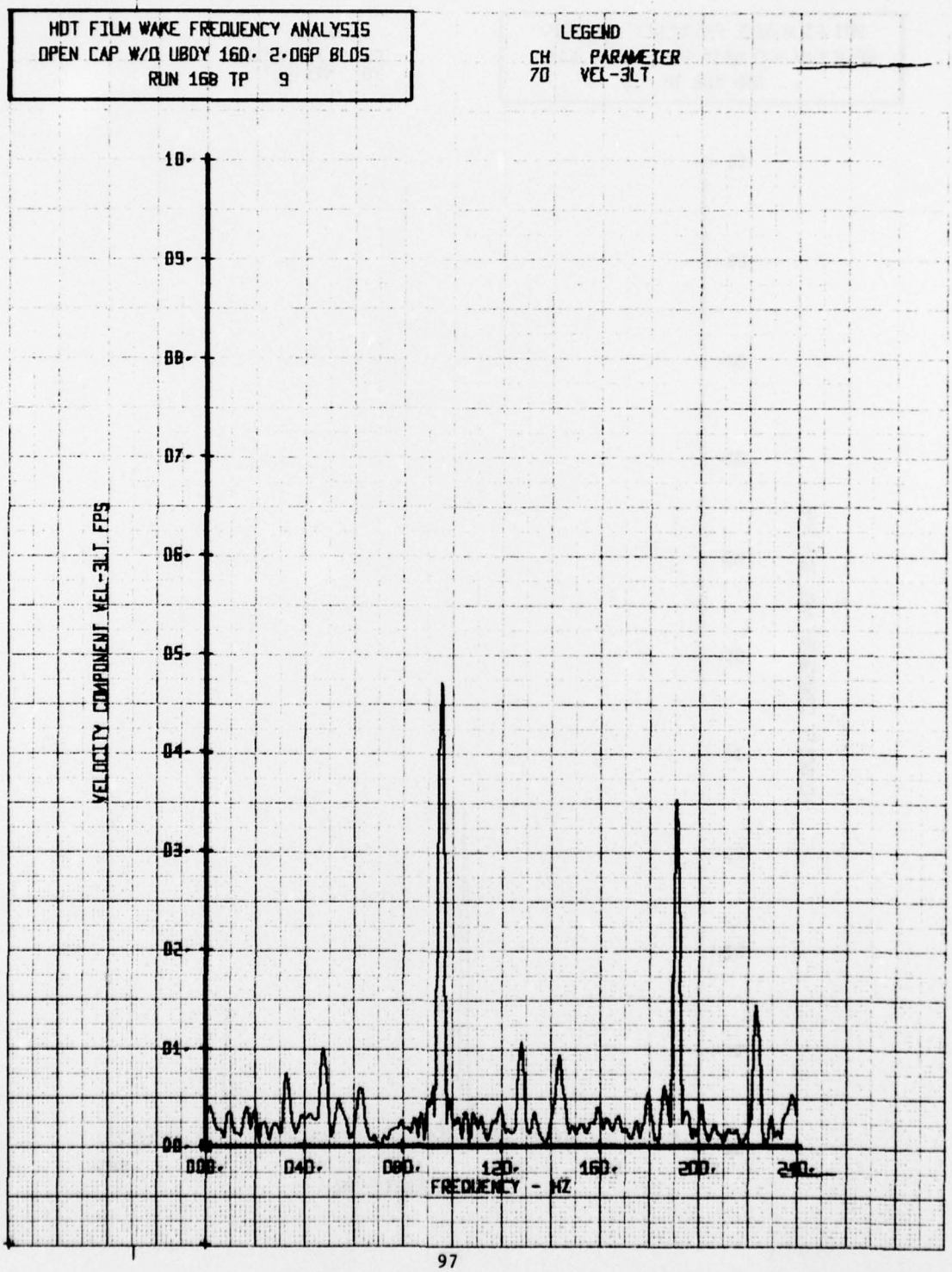
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 16D. 2.0GP BLDS
RUN 168 TP 9
LEGEND
CH PARAMETER
70 VEL-3LT
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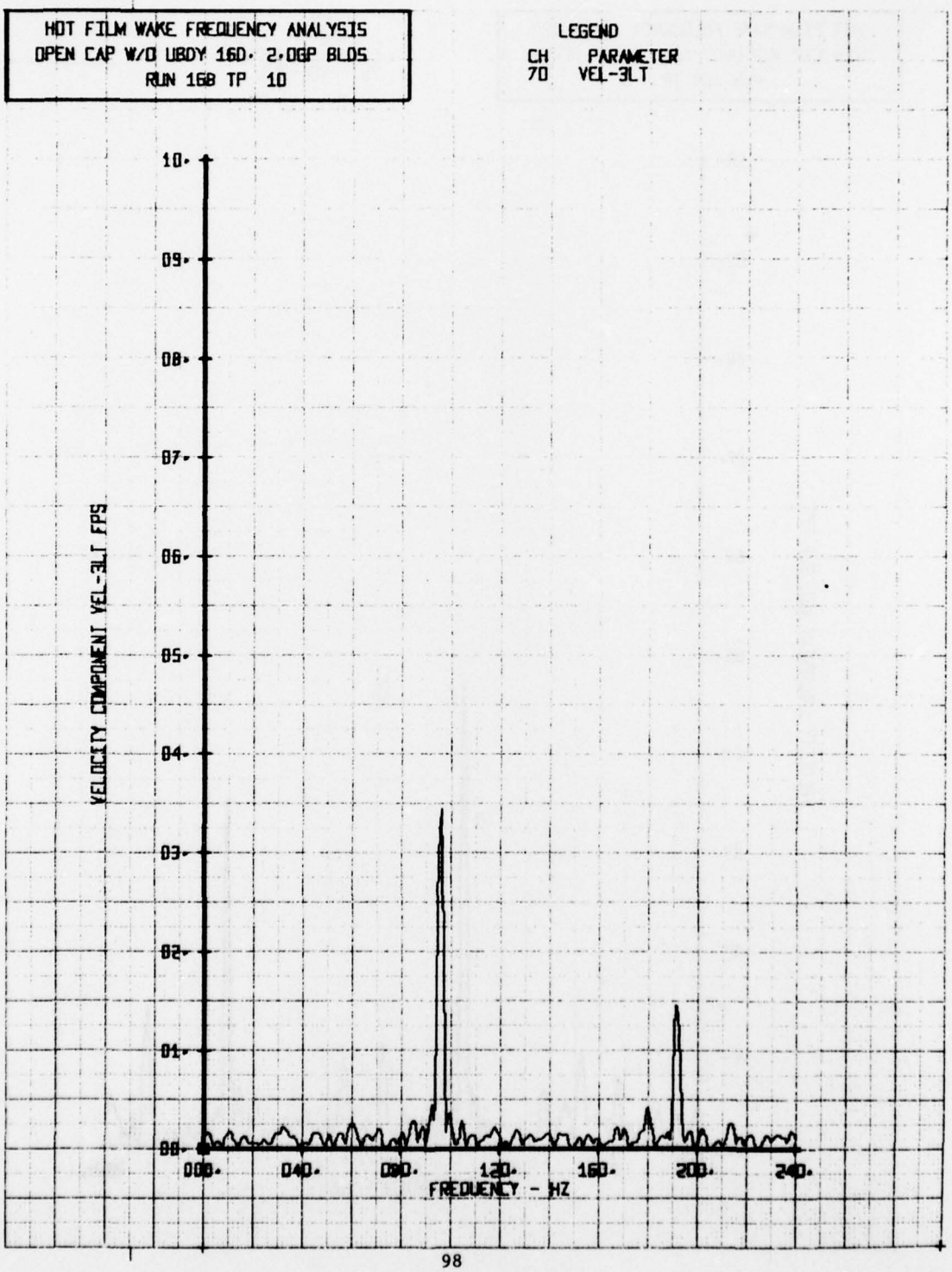
FREQUENCY - HZ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RUN 168 TP 10
LEGEND
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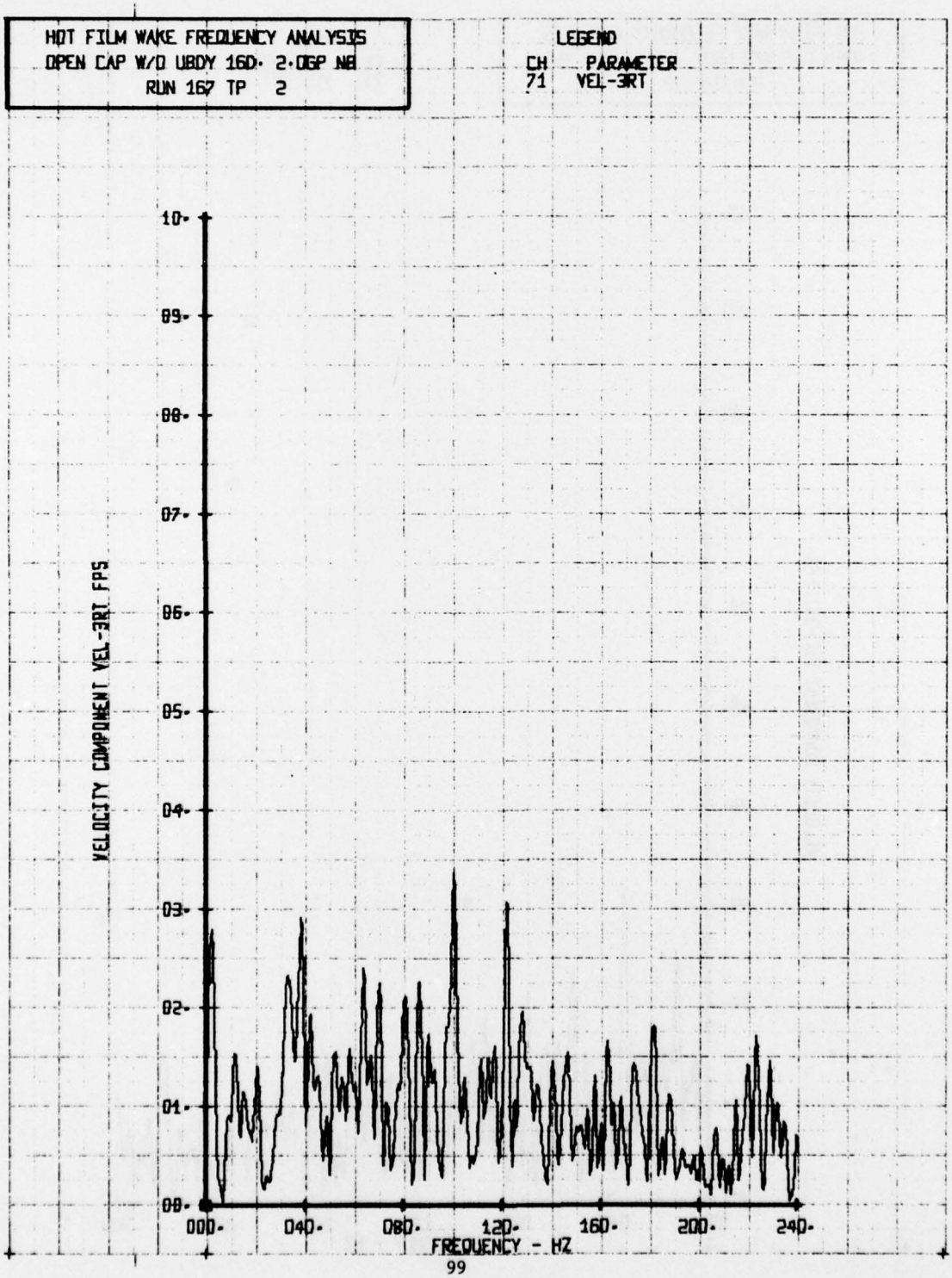
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 16D. 2.0GP NB
RUN 167 TP 2
LEGEND
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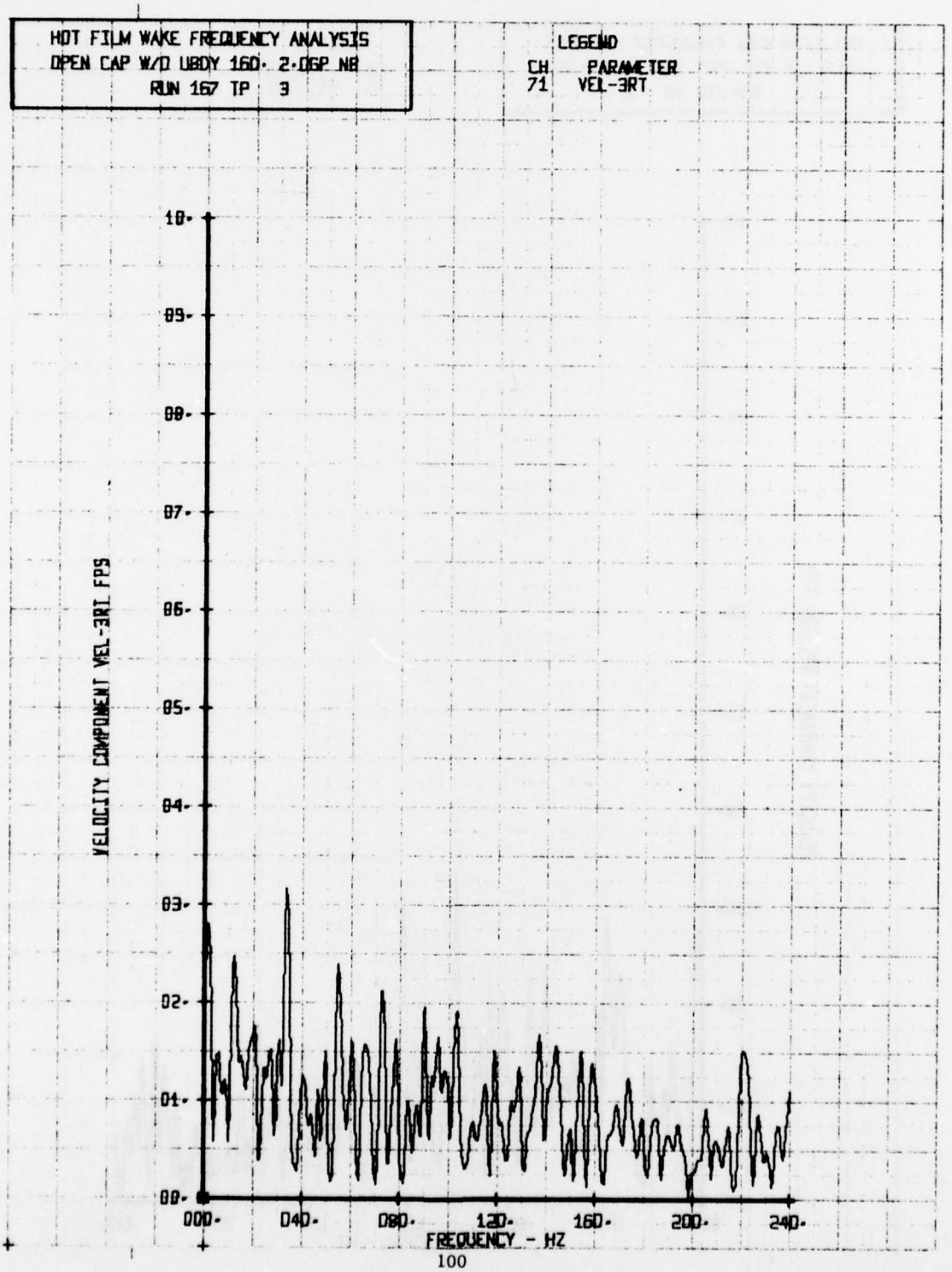
FREQUENCY - HZ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OPEN CAP W/O UBDY 160. 2.0GP NB
RUN 167 TP 3
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CH PARAMETER
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VELOCITY COMPONENT VEL-3RT FPS
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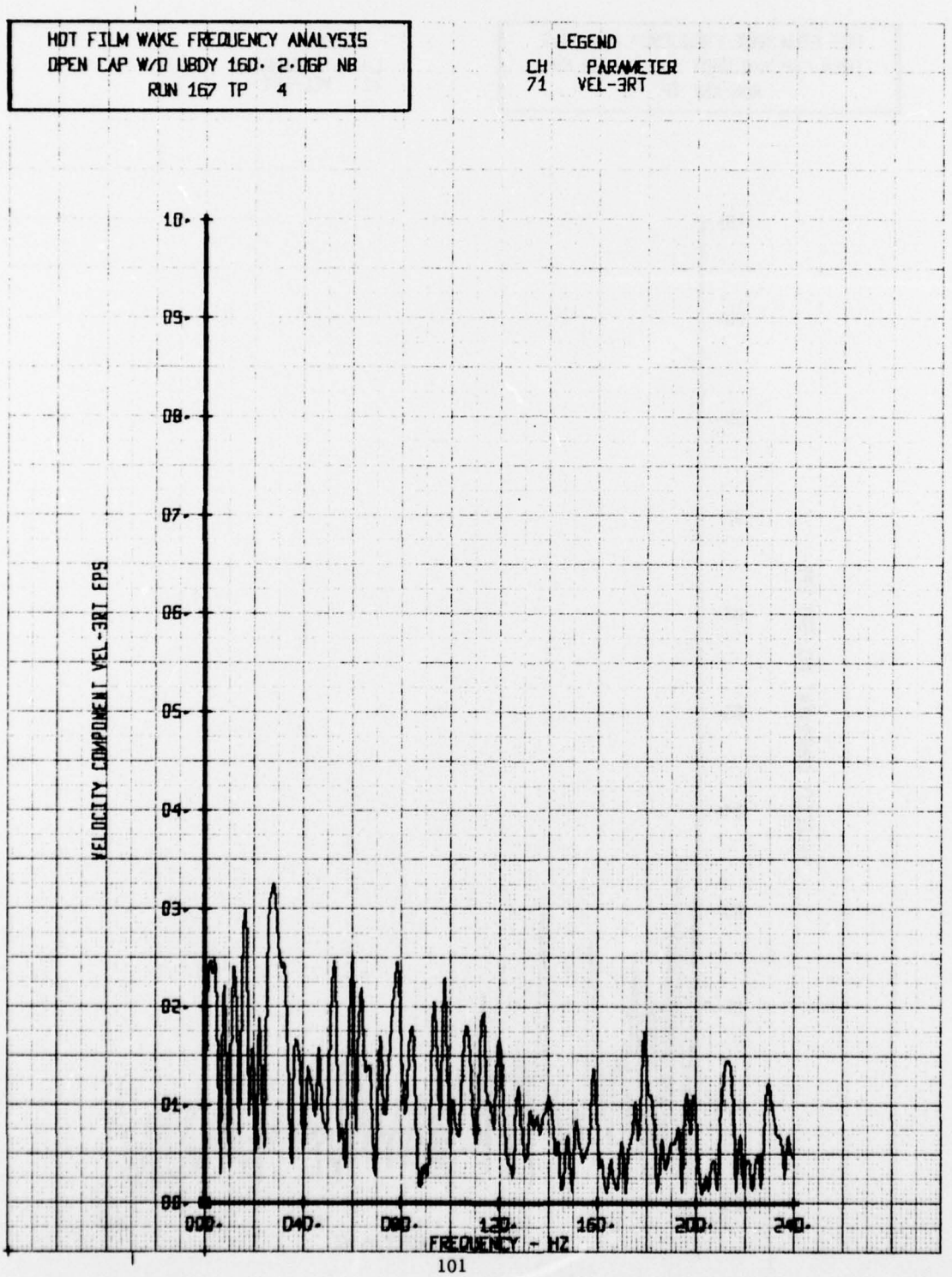
FREQUENCY - HZ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OPEN CAP W/O UBDY 160. 2.0GP NB
RUN 167 TP 4
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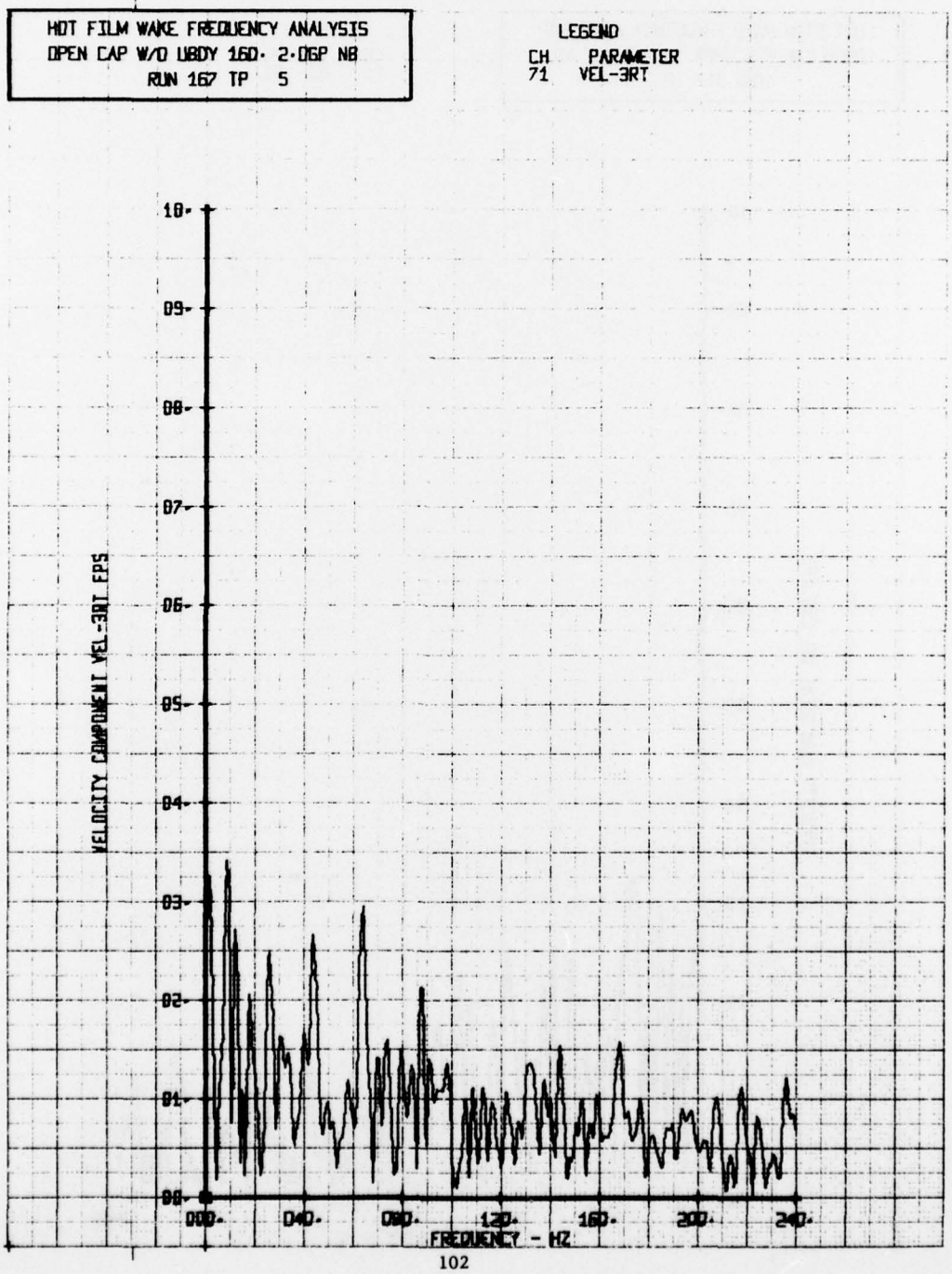
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RUN 167 TP 5
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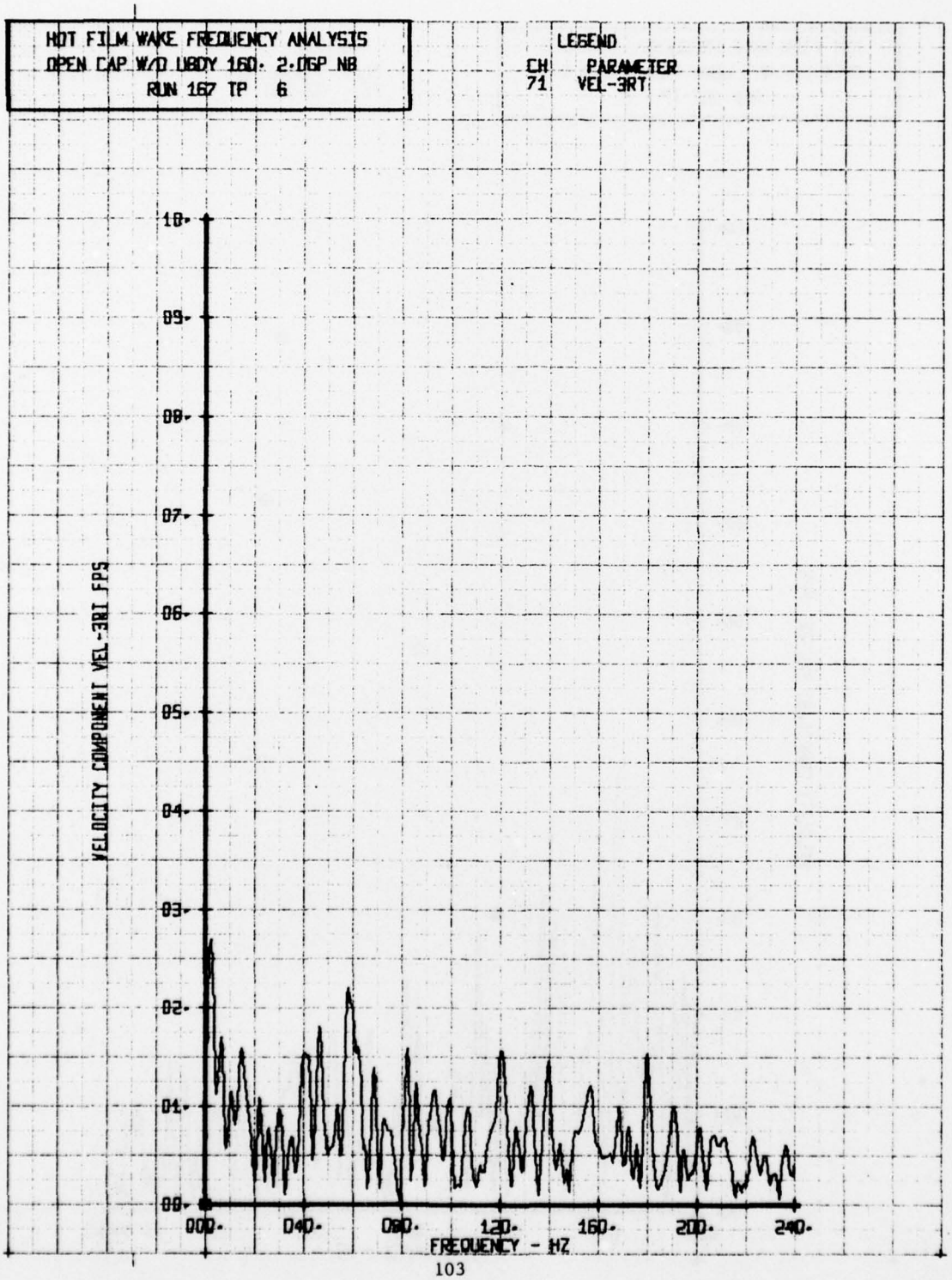
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OPEN CAP W/O UBDY 160. 2.0GP NB
RUN 167 TP 6
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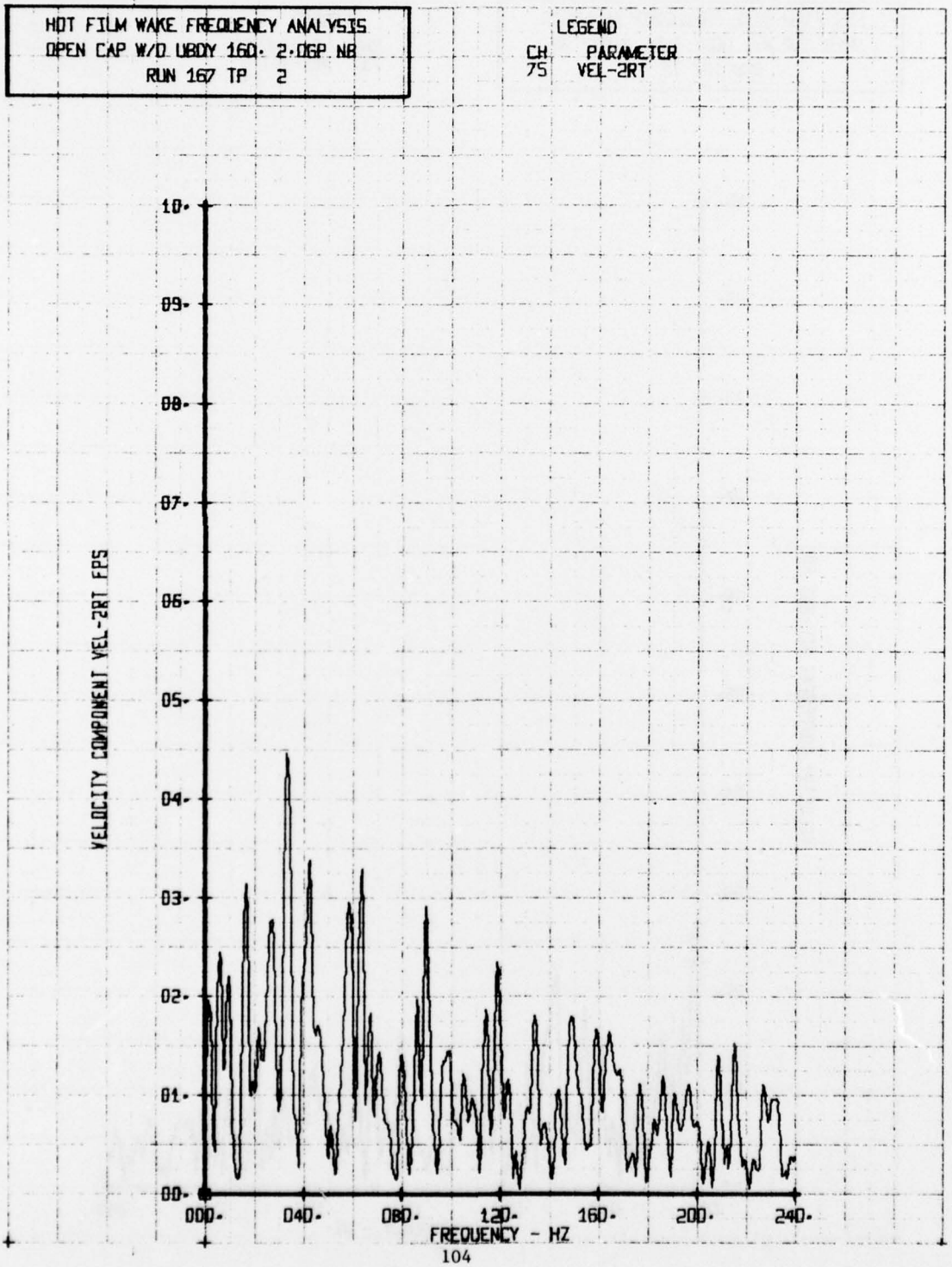
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/D UBDY 160. 2.0GP NB
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VELOCITY COMPONENT VEL-2RT FPS
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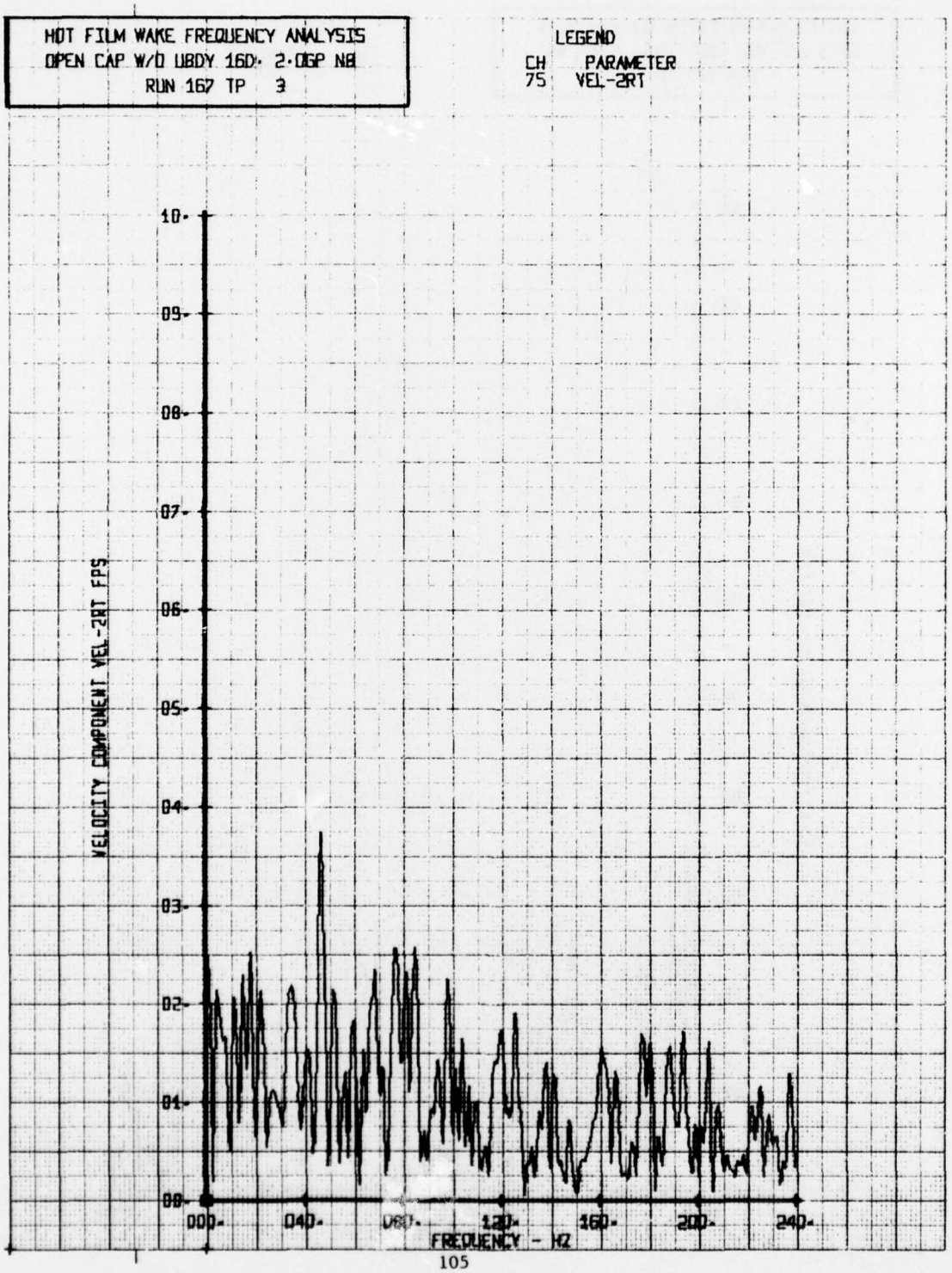
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 160· 2·0GP NB
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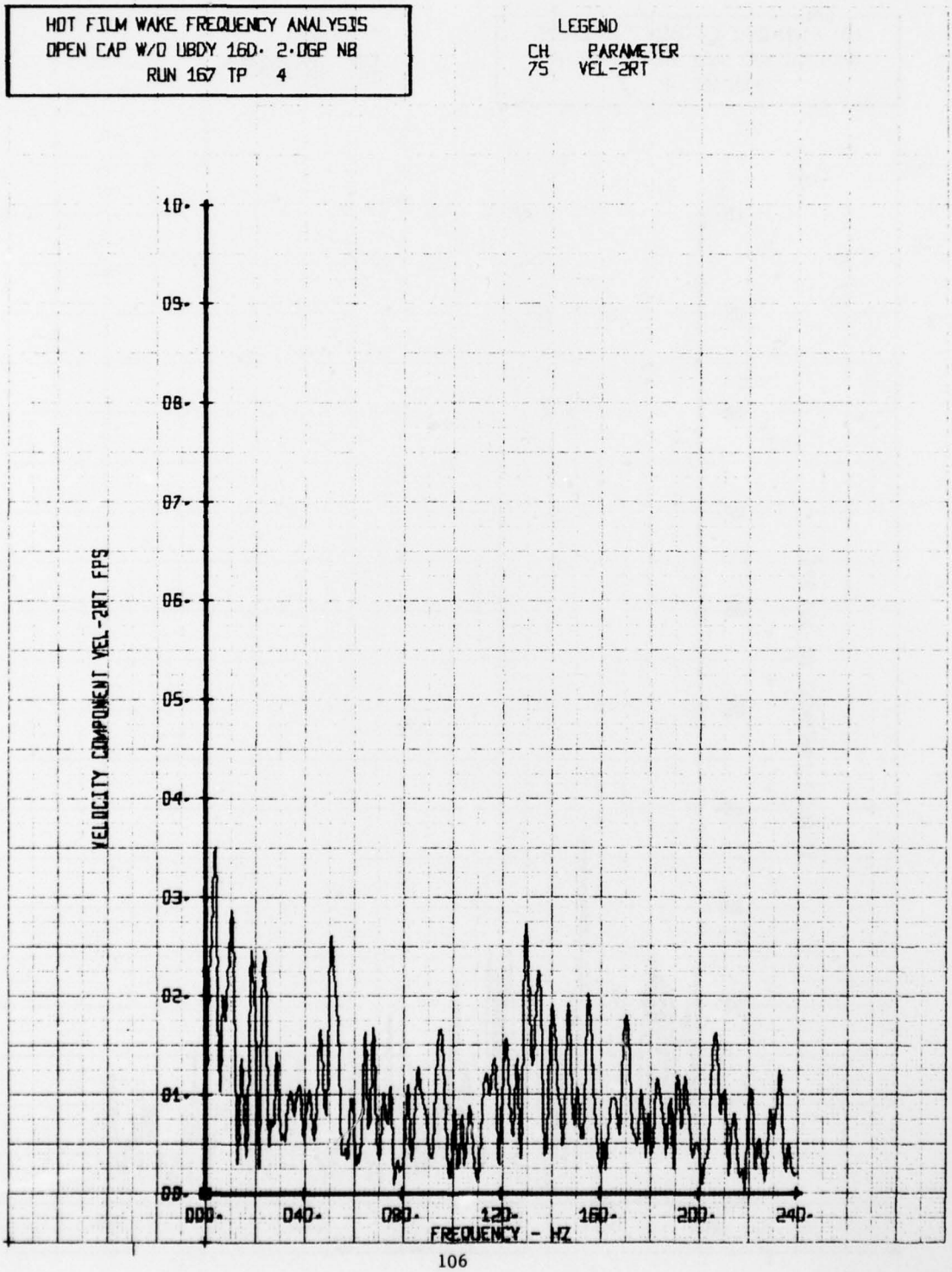
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OPEN CAP W/O UBDY 16D. 2.0GP NB
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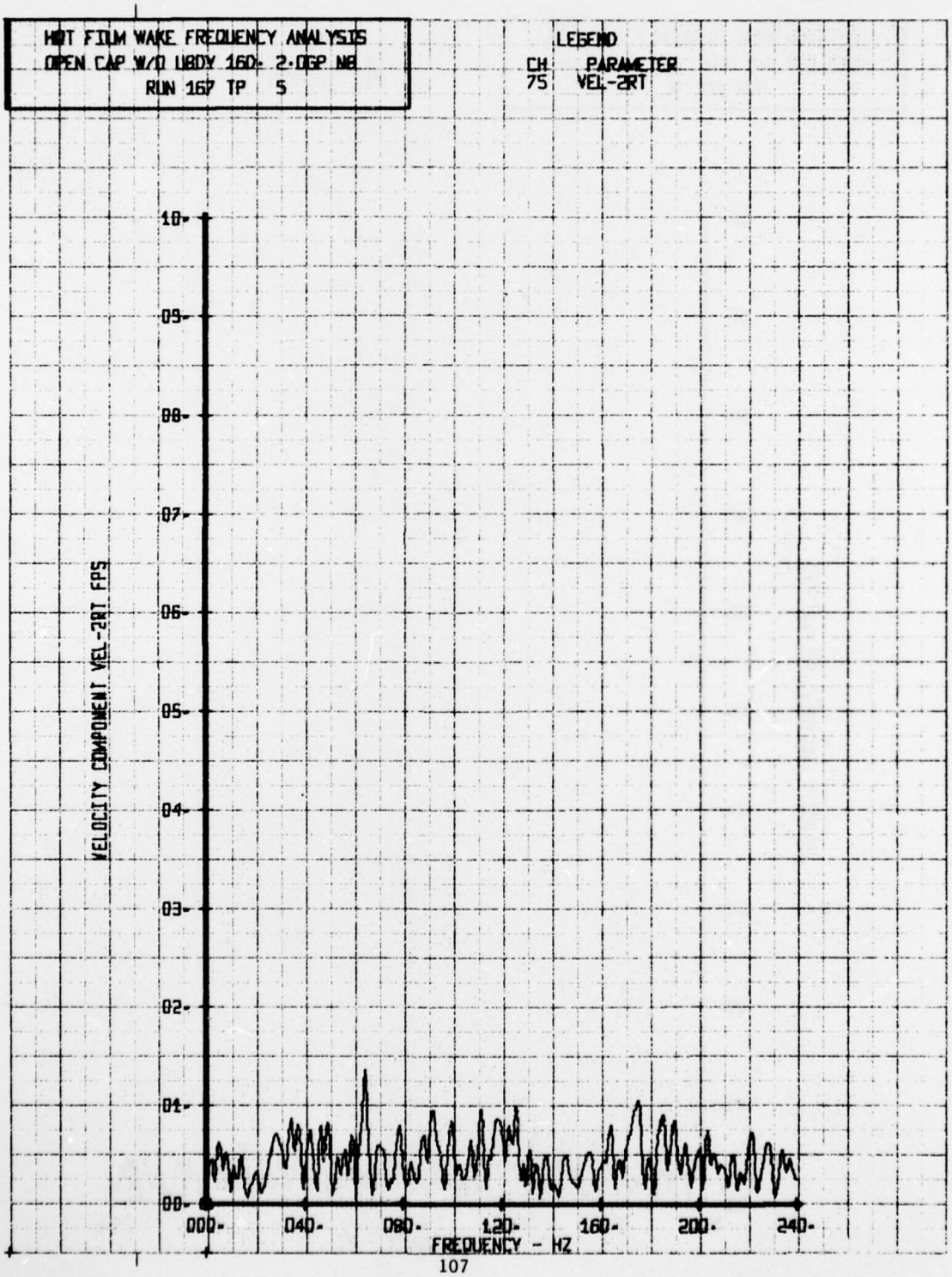
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 160- 2-DGP NB
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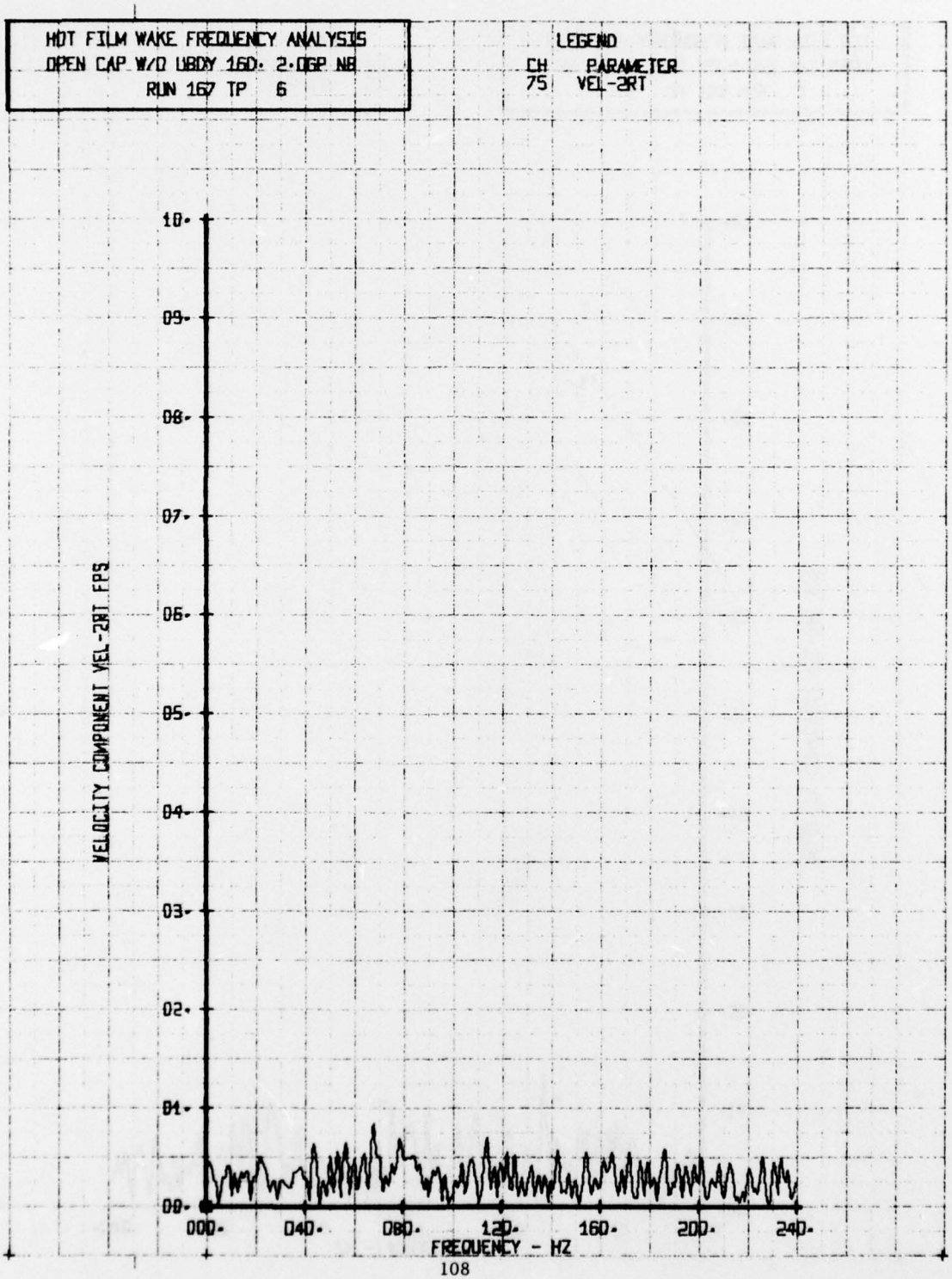
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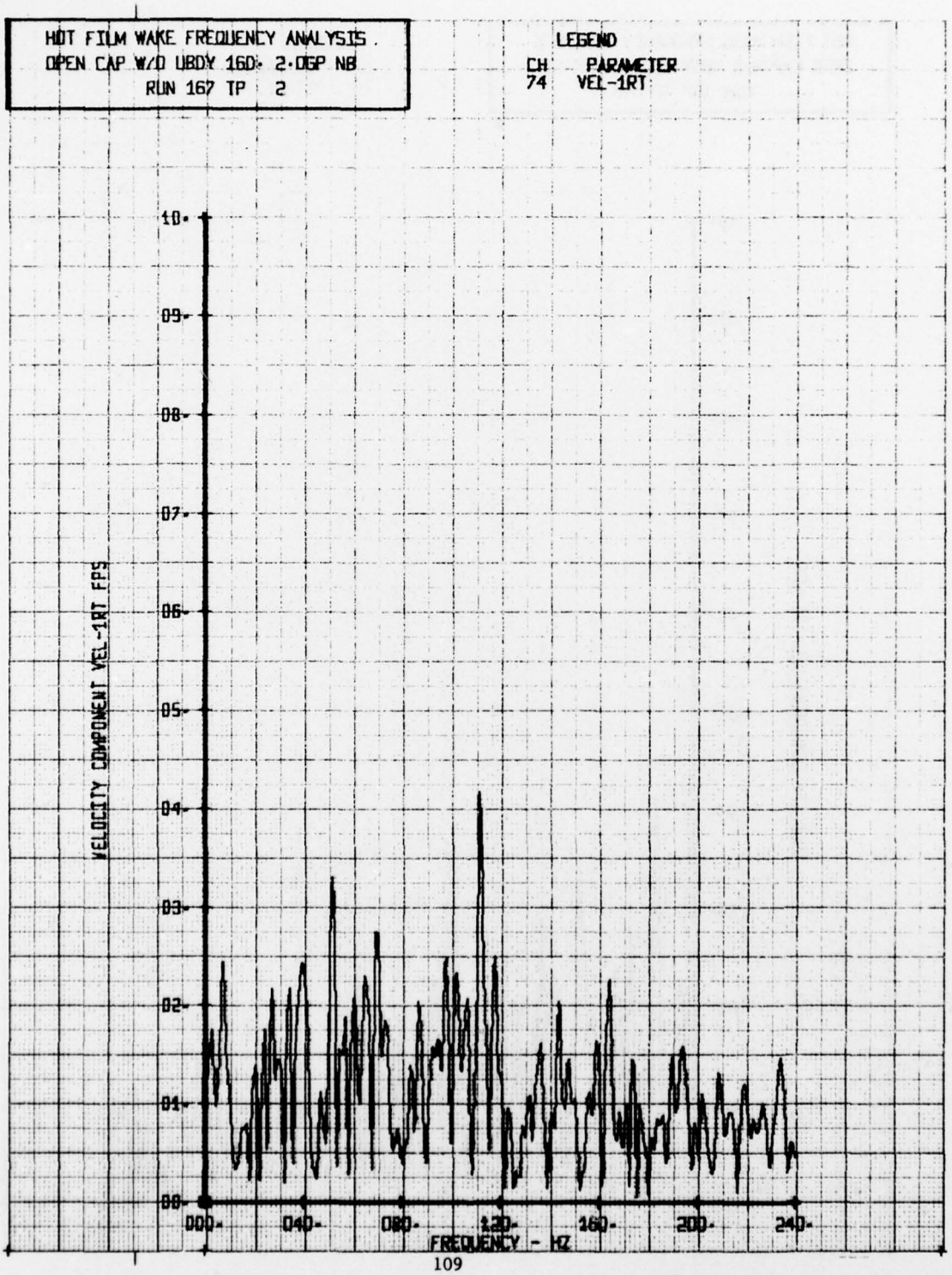
HOT FILM WAKE FREQUENCY ANALYSIS .
OPEN CAP W/O UBDY 160. 2.0GP NB
RUN 167 TP 2
LEGEND
CH PARAMETER
74 VEL-1RT
VELOCITY COMPONENT VEL-1RT FPS
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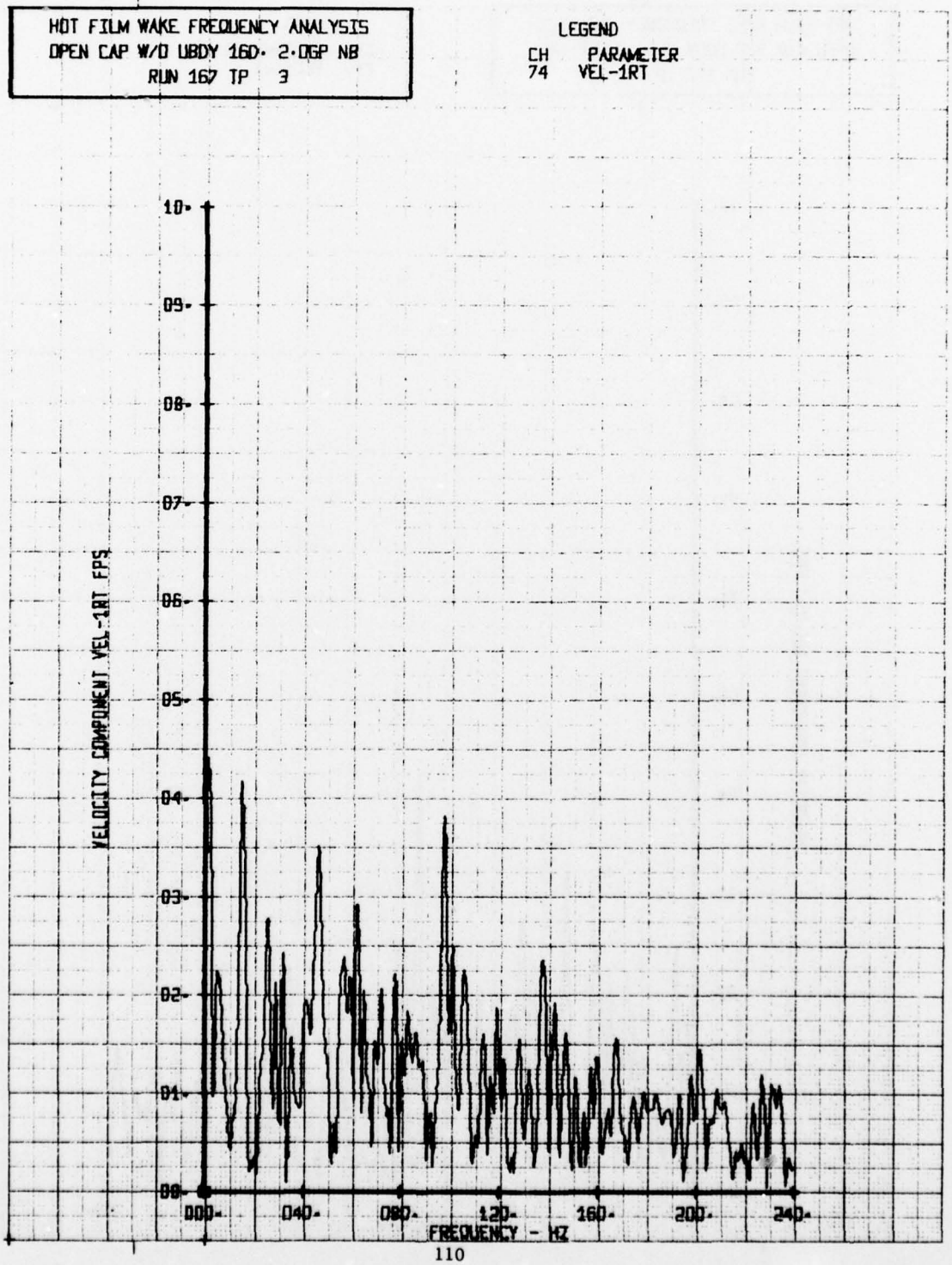
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OPEN CAP W/O UBDY 160. 2.0GP NB
RUN 167 TP 3
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VELOCITY COMPONENT VEL-1RT FPS
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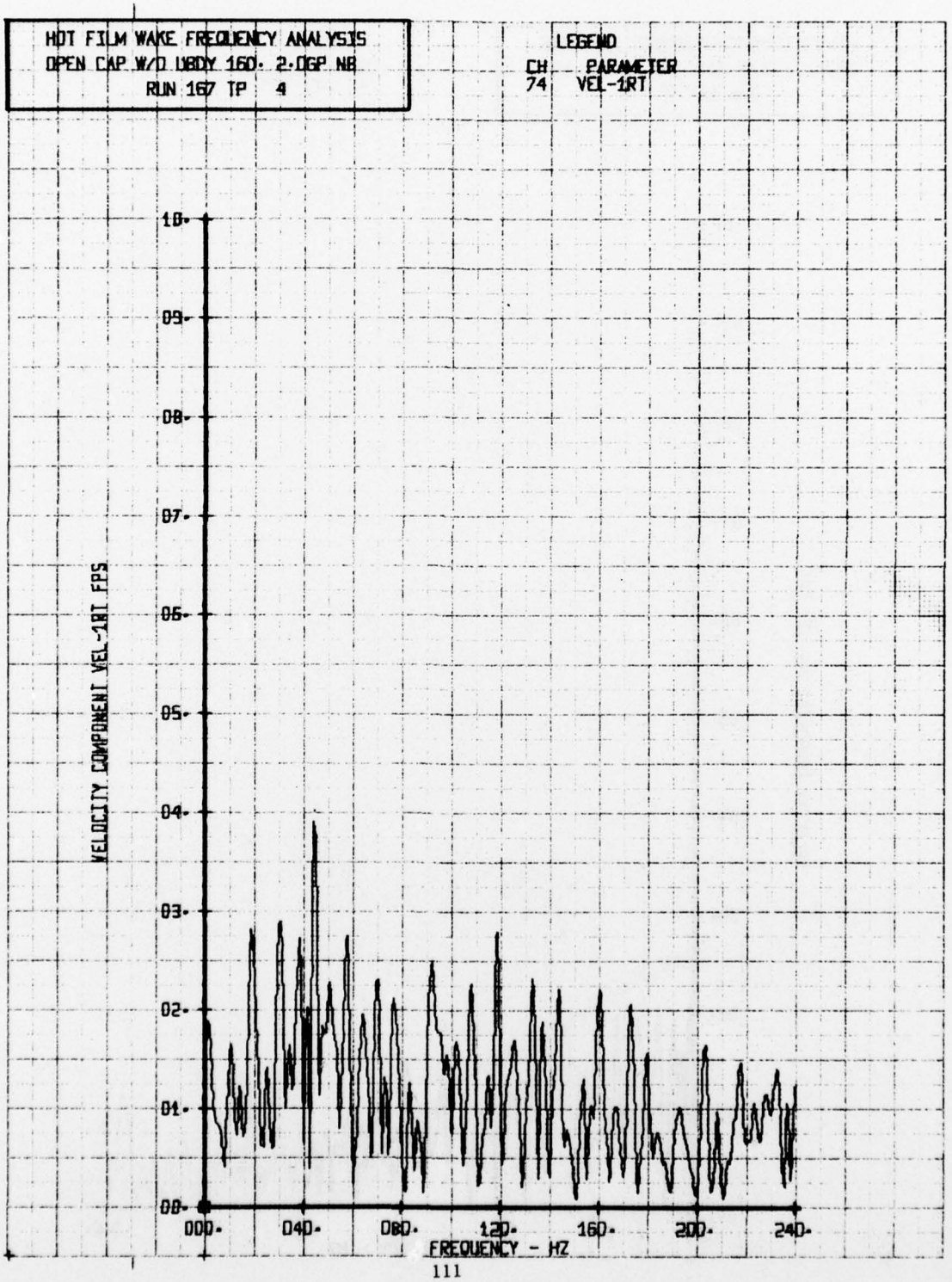
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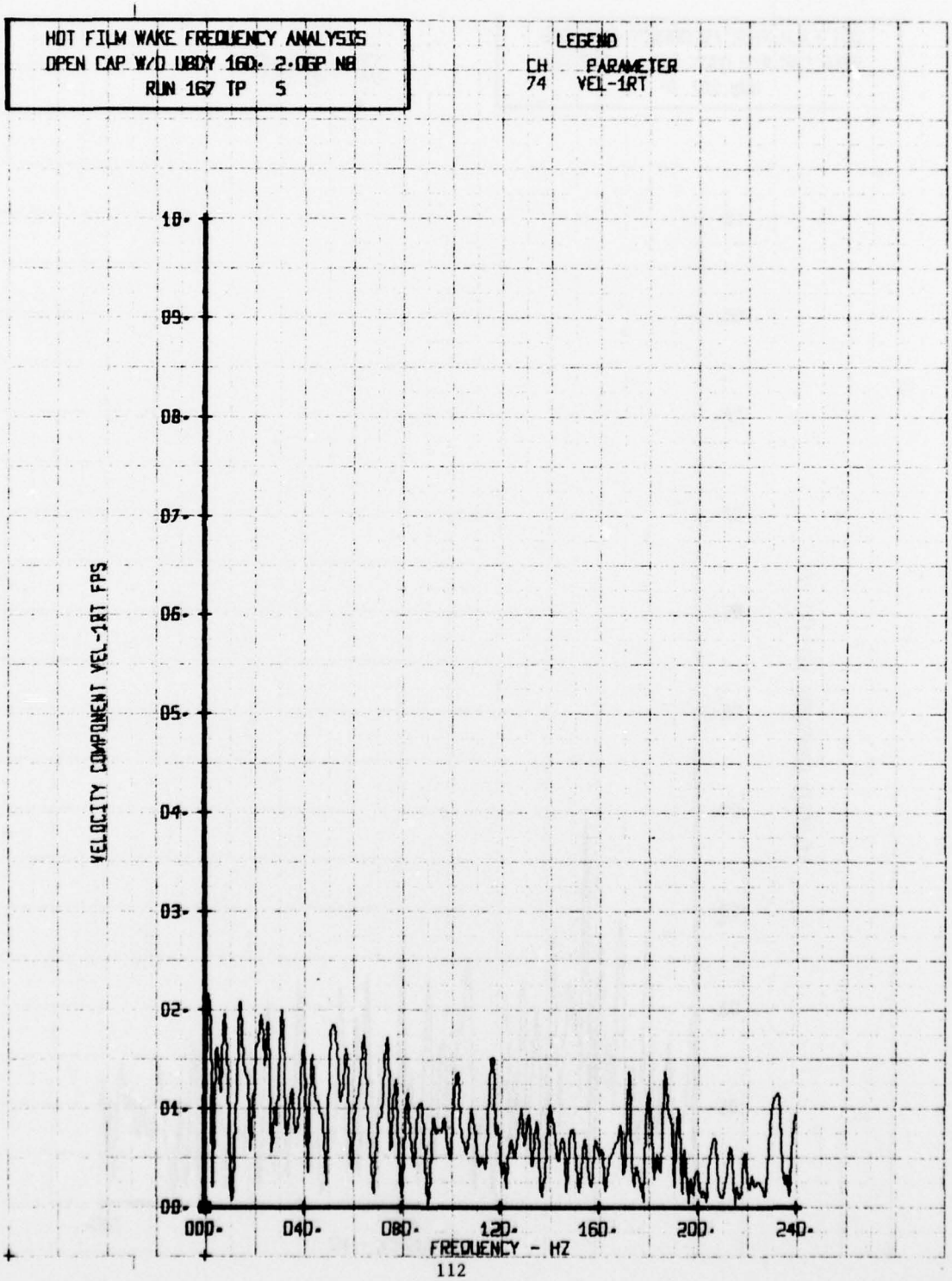
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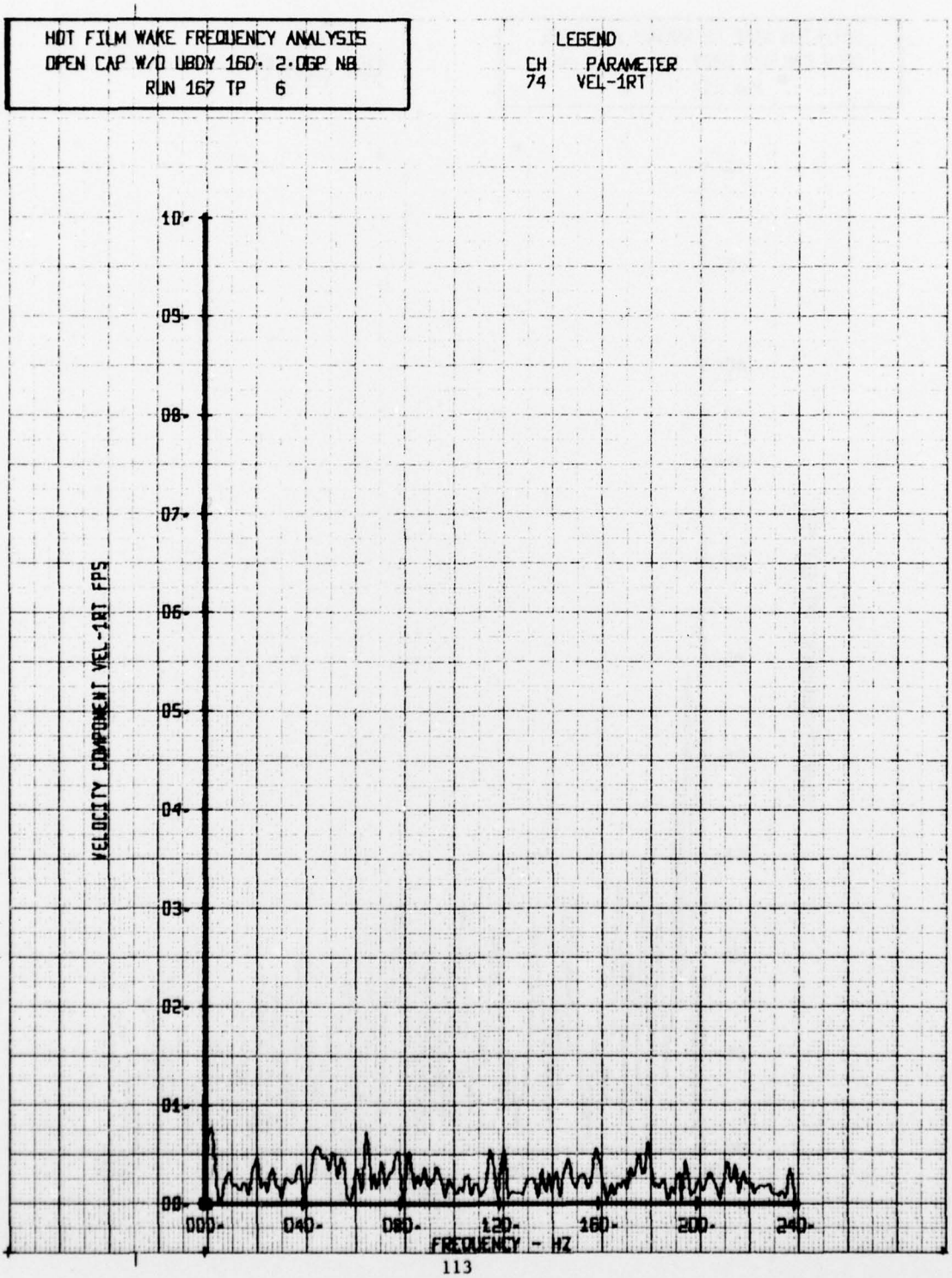
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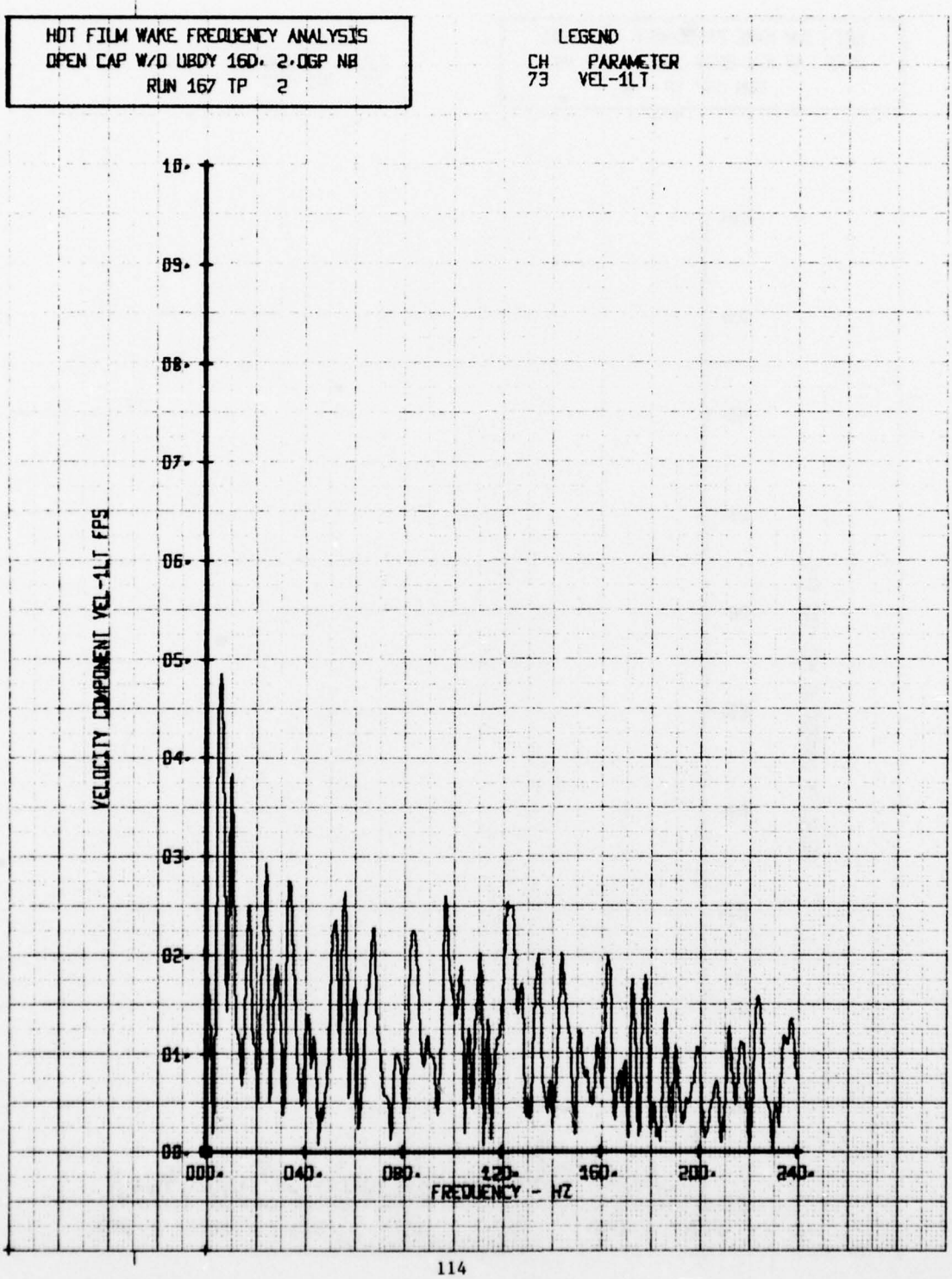
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 16D. 2.0GP NB
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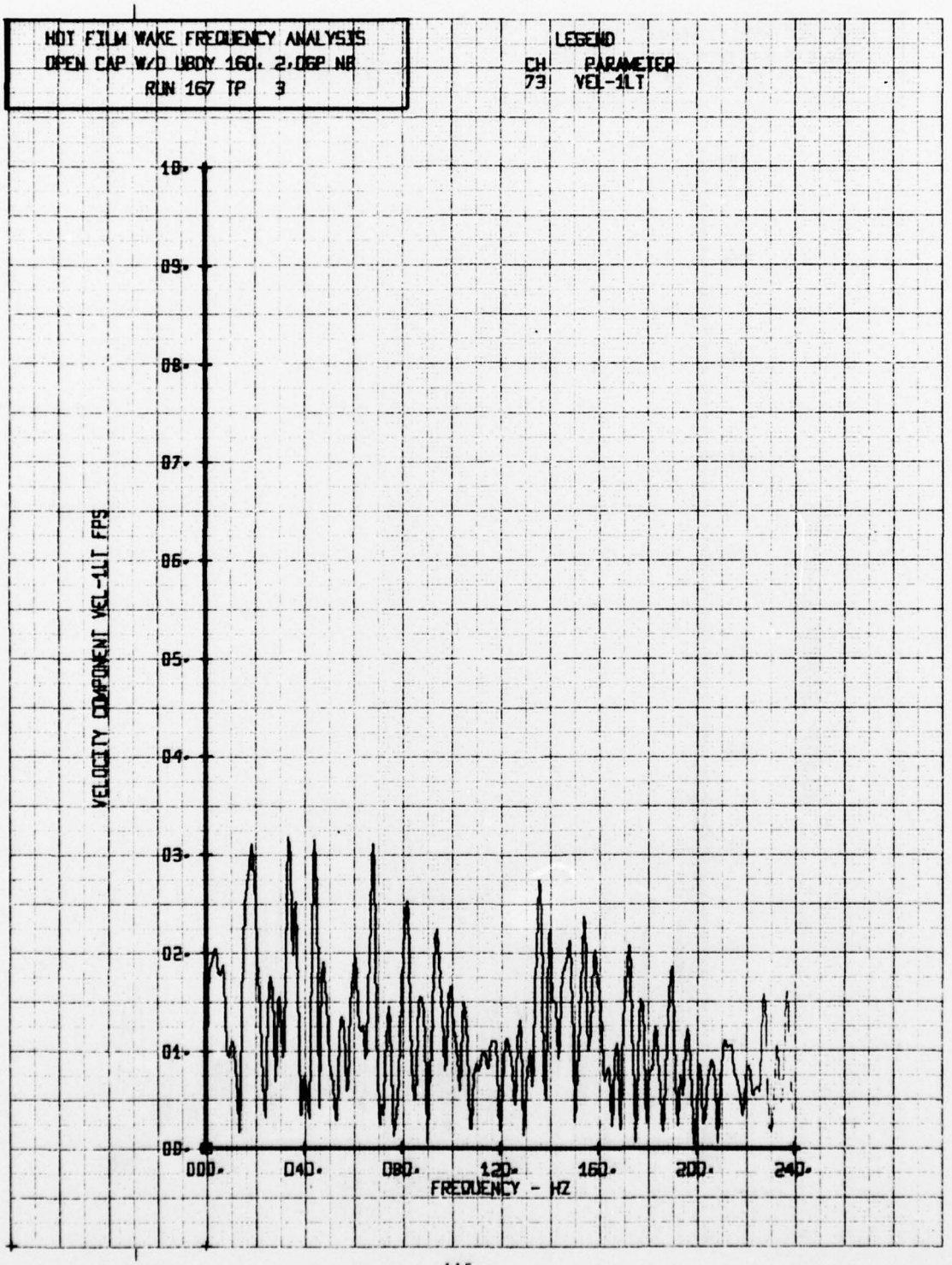
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OPEN CAP W/O UBDY 160. 2.DGP NB
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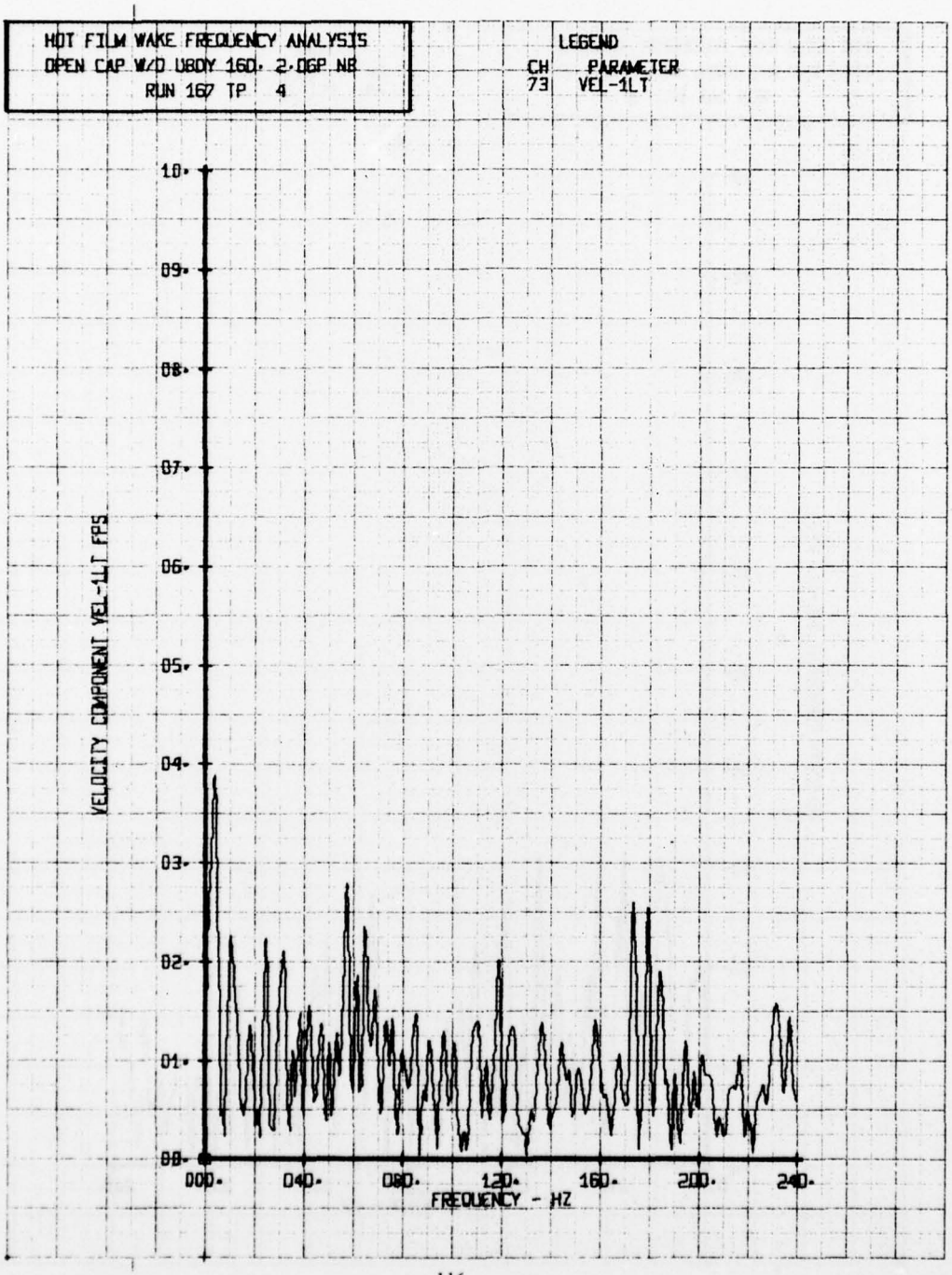
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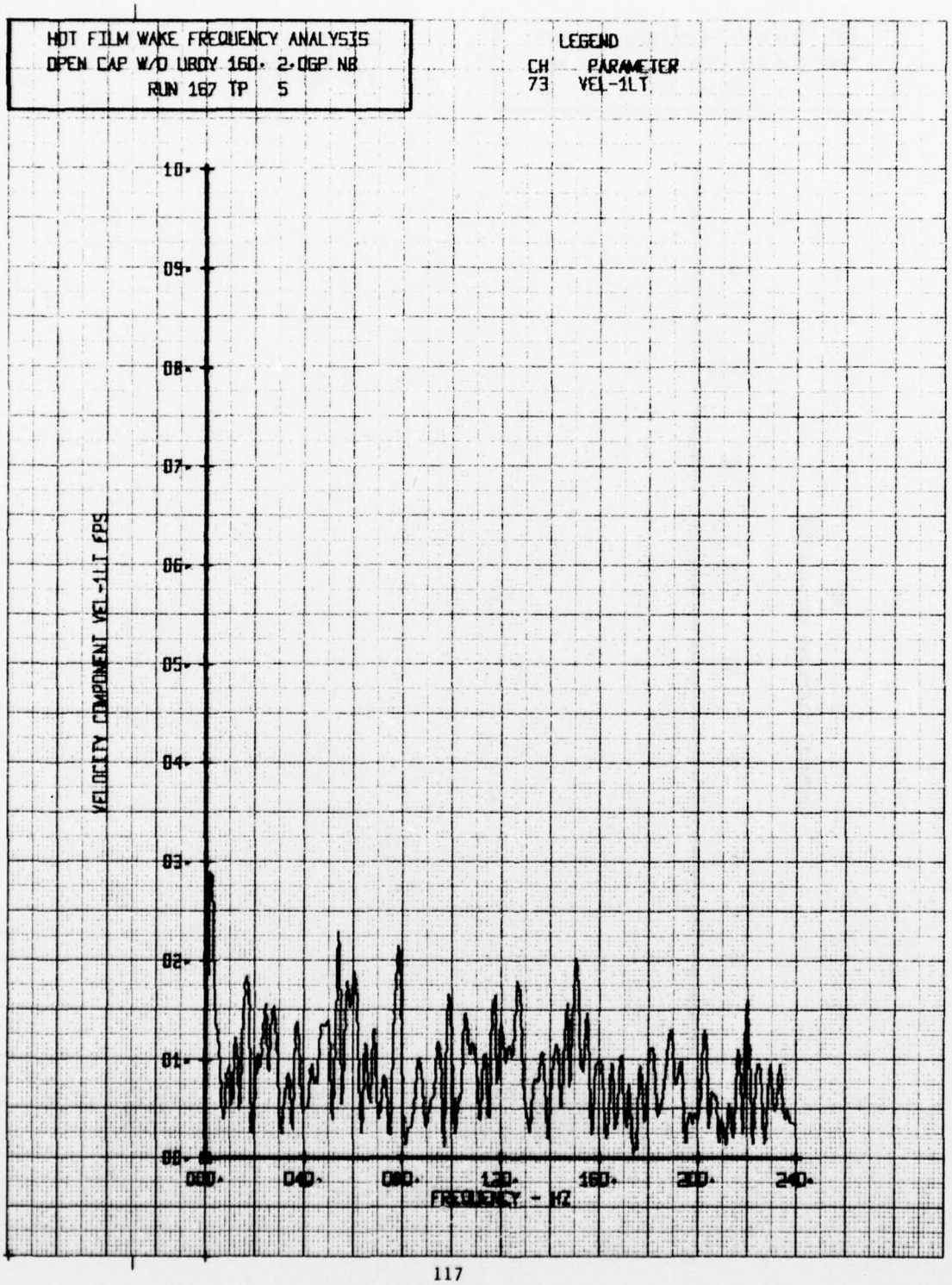
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OPEN CAP W/O UBOY 160. 2.0GP NB
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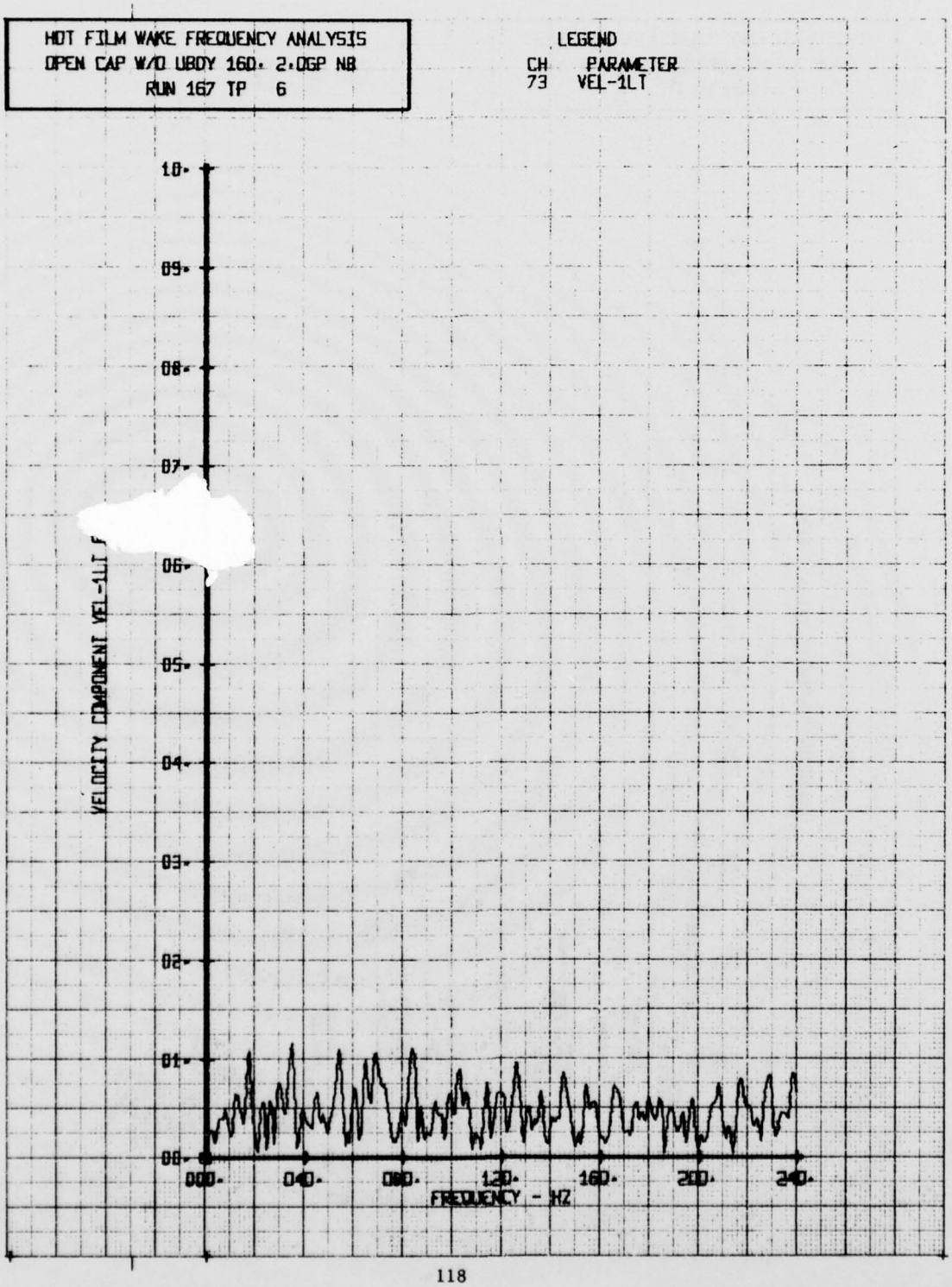
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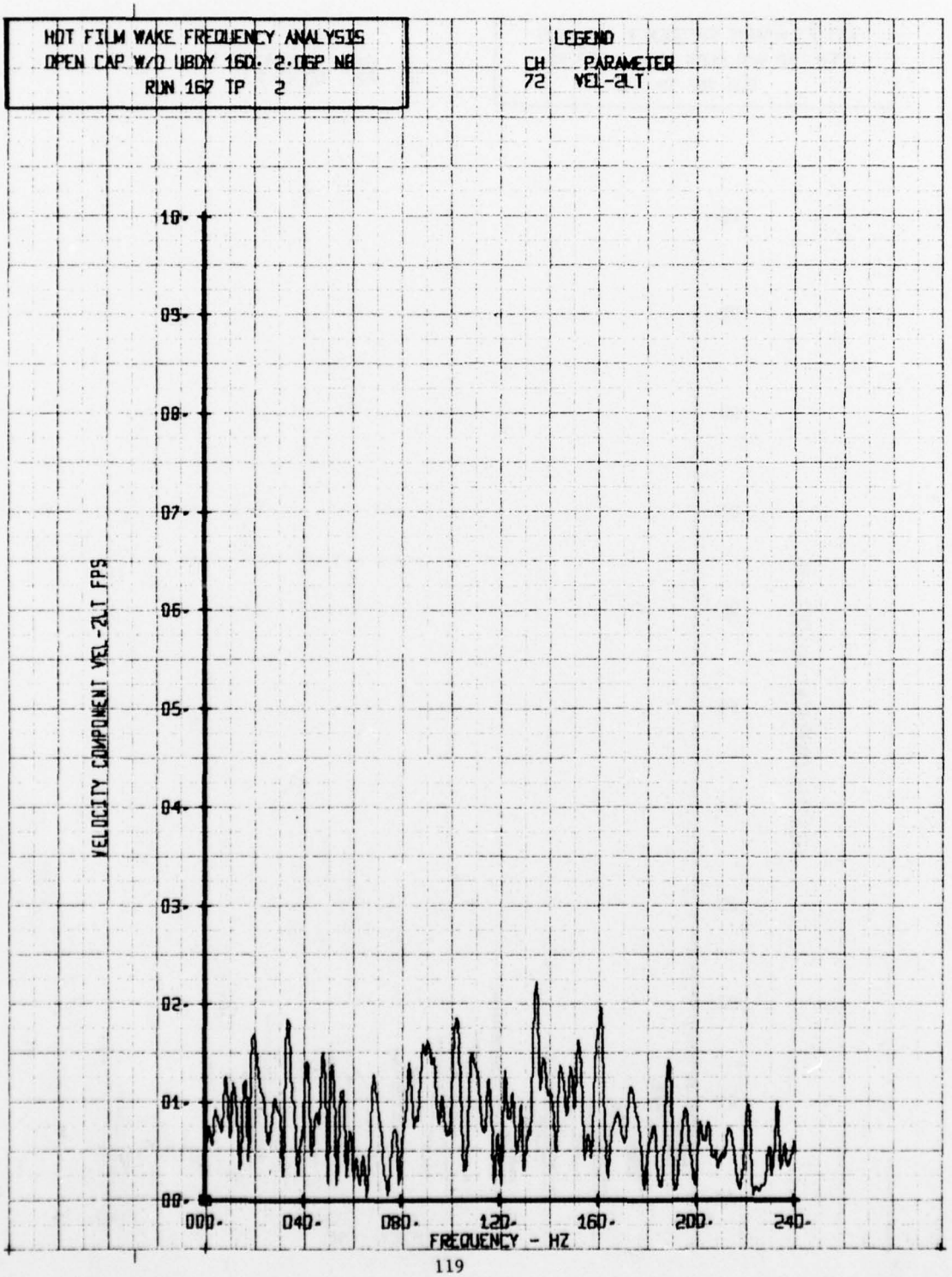
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72 VEL-2LT
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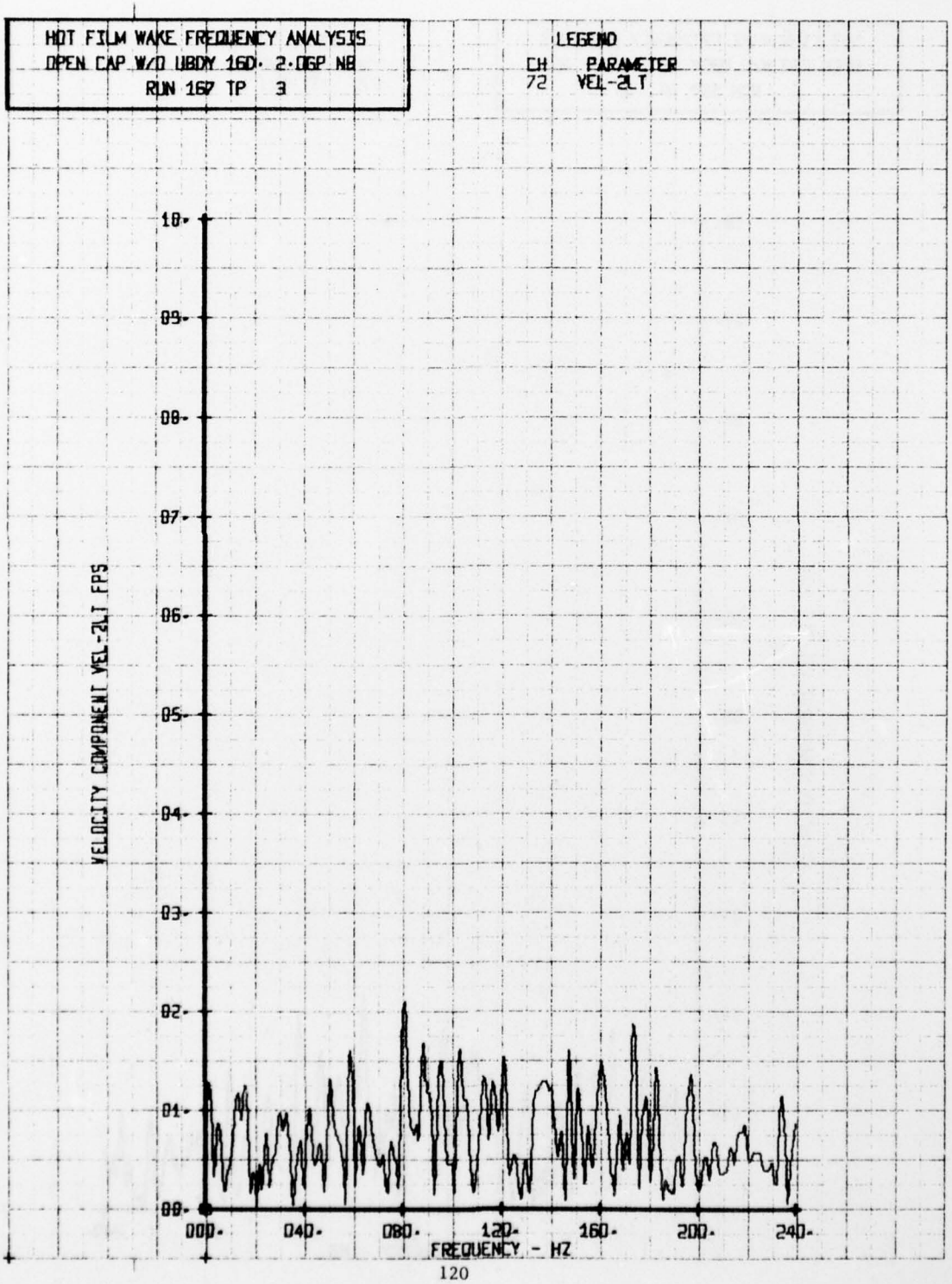
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 16D. 2.DGP NB
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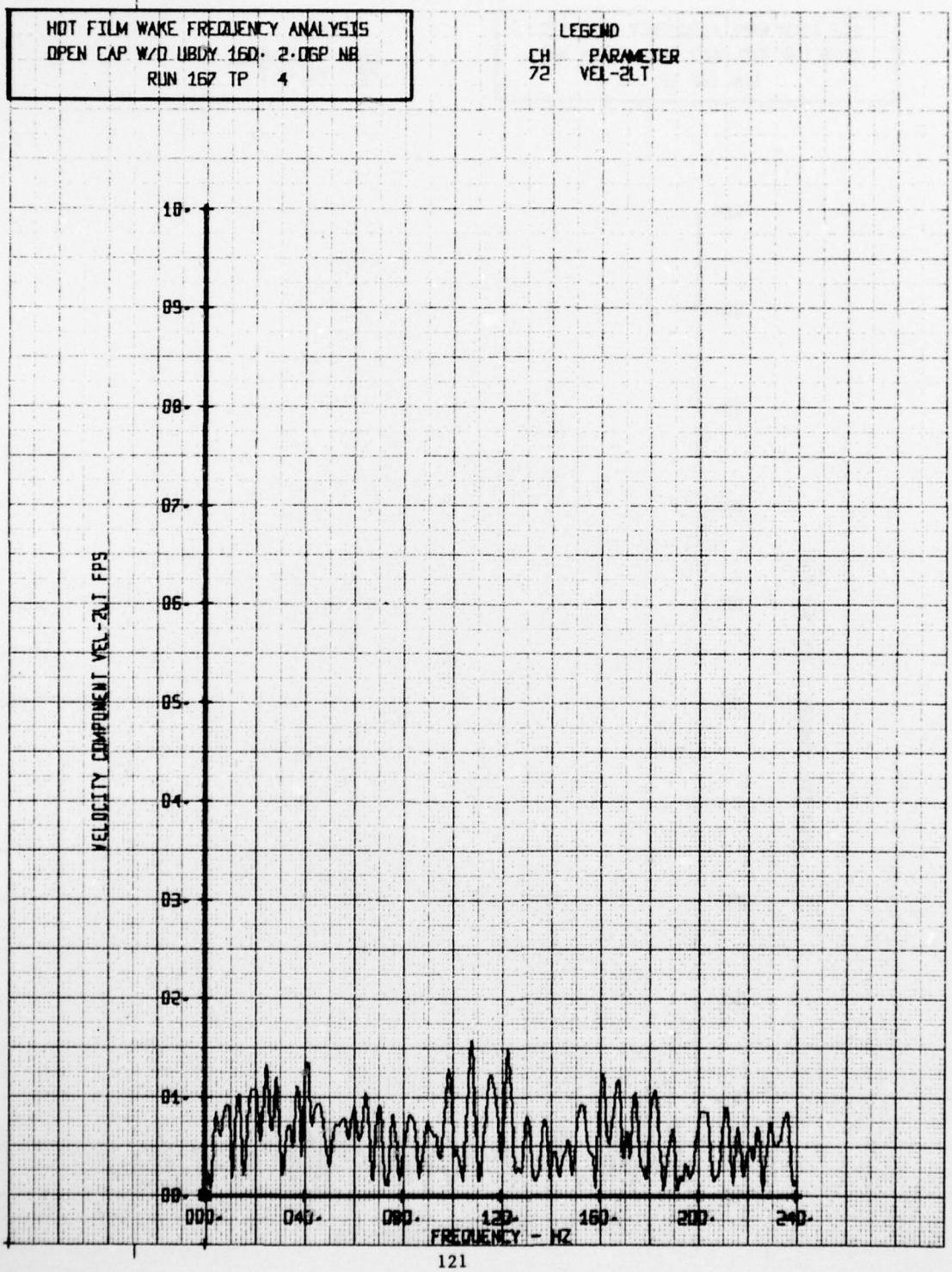
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 16D. 2.0GP NB
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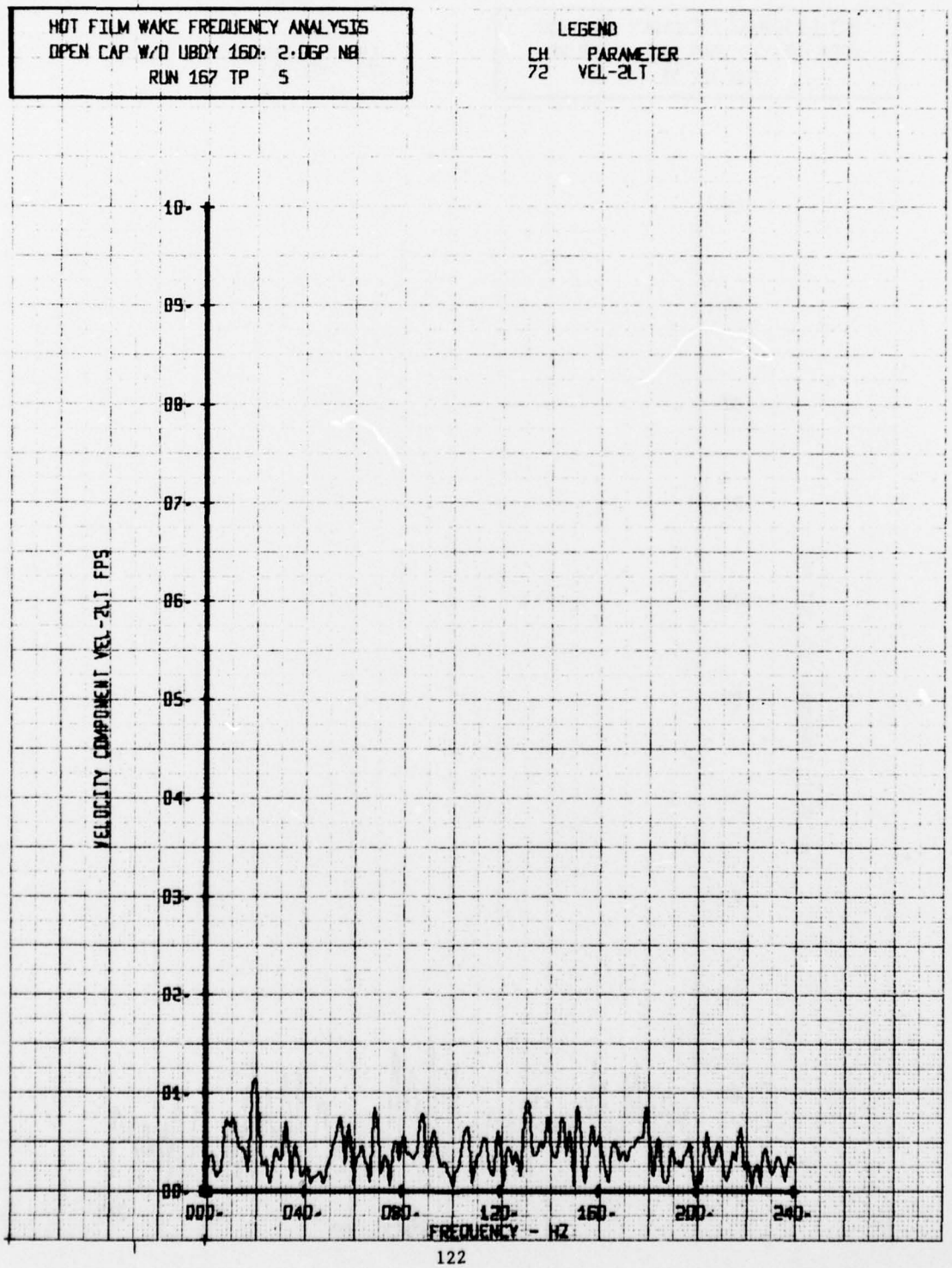
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OPEN CAP W/O UBDY 160. 2.0GP N8
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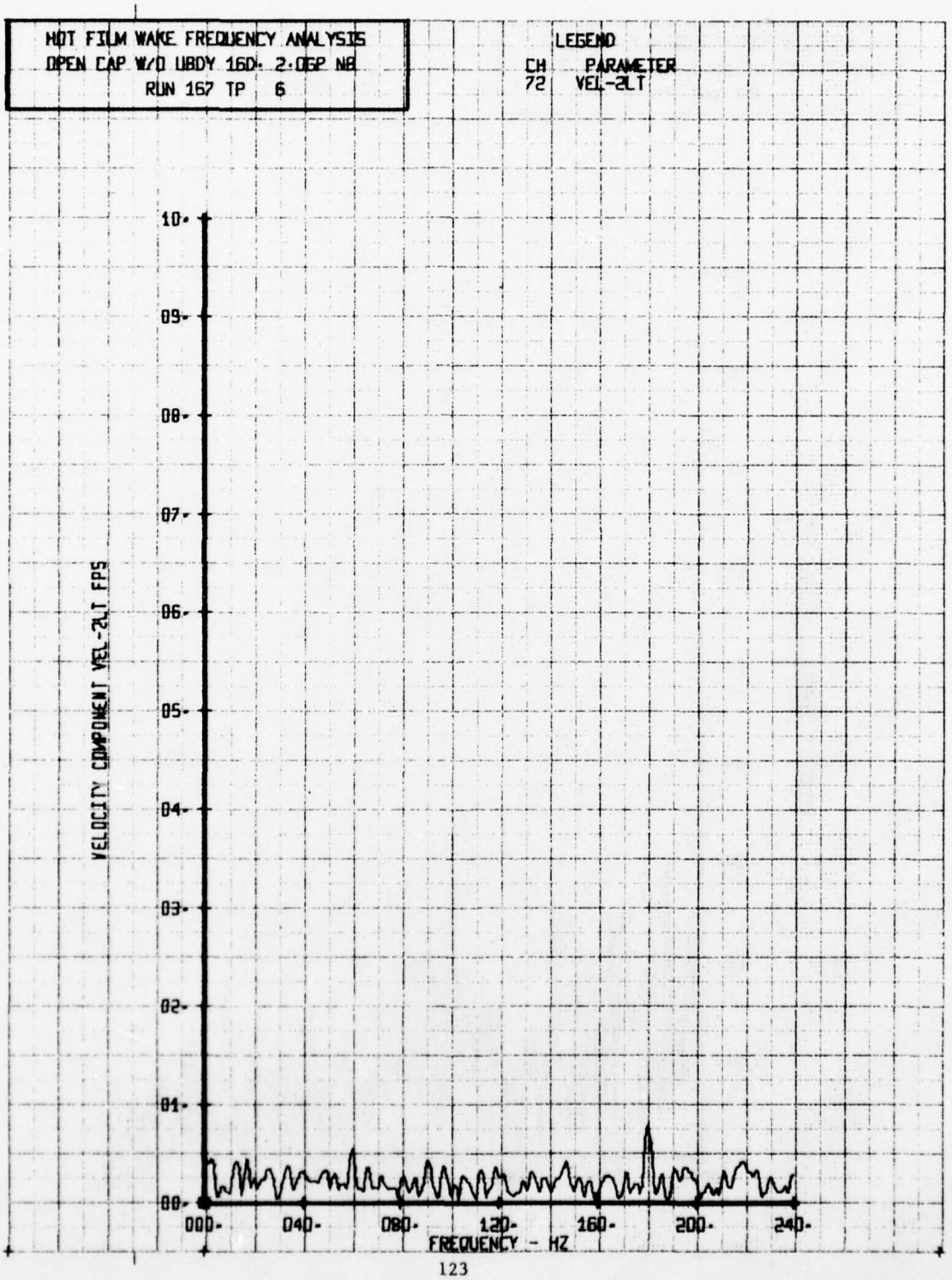
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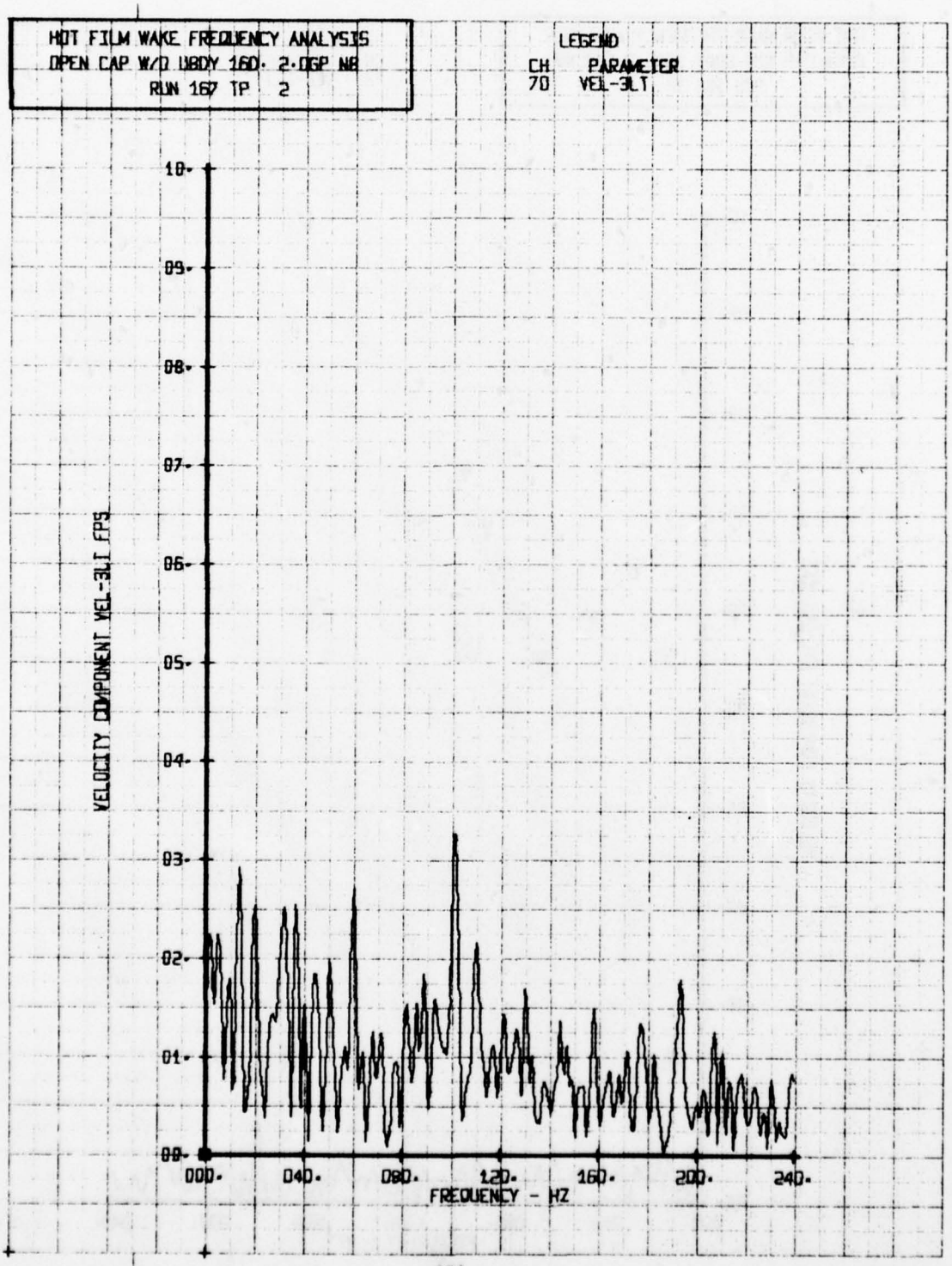
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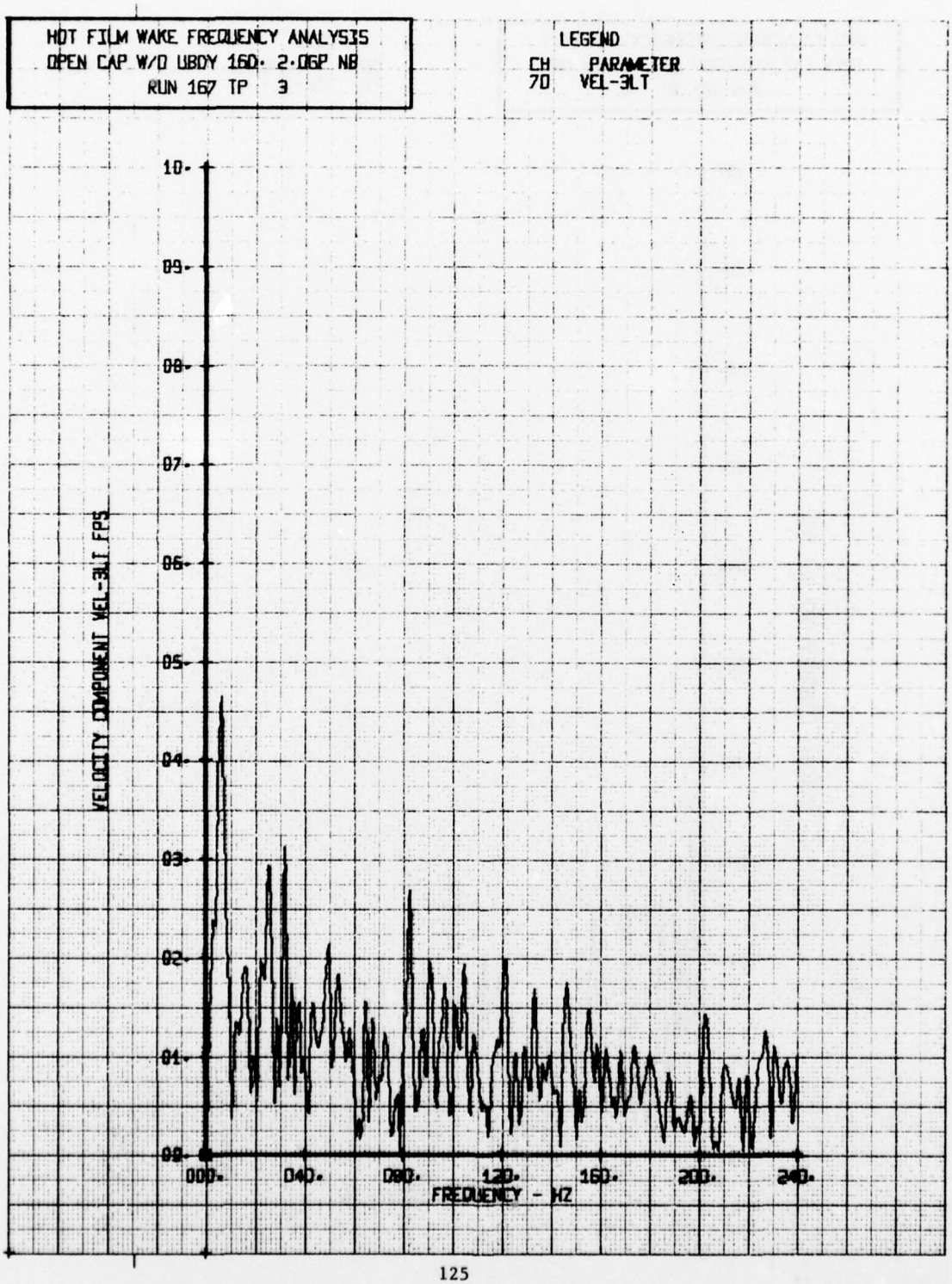
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 160. 2.0GP NB
RUN 167 TP 3
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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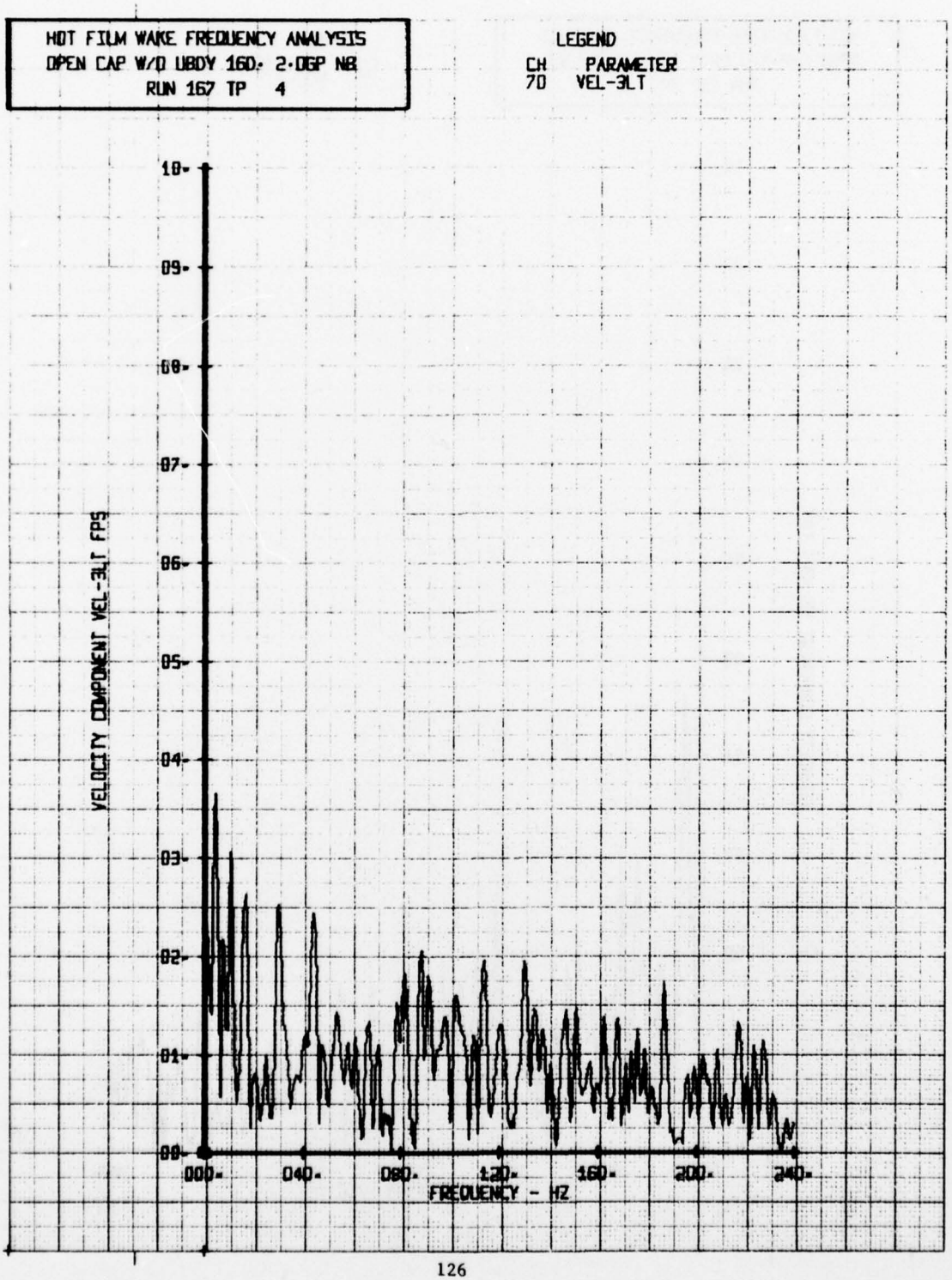
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 160. 2-DGP NB
RUN 167 TP 4
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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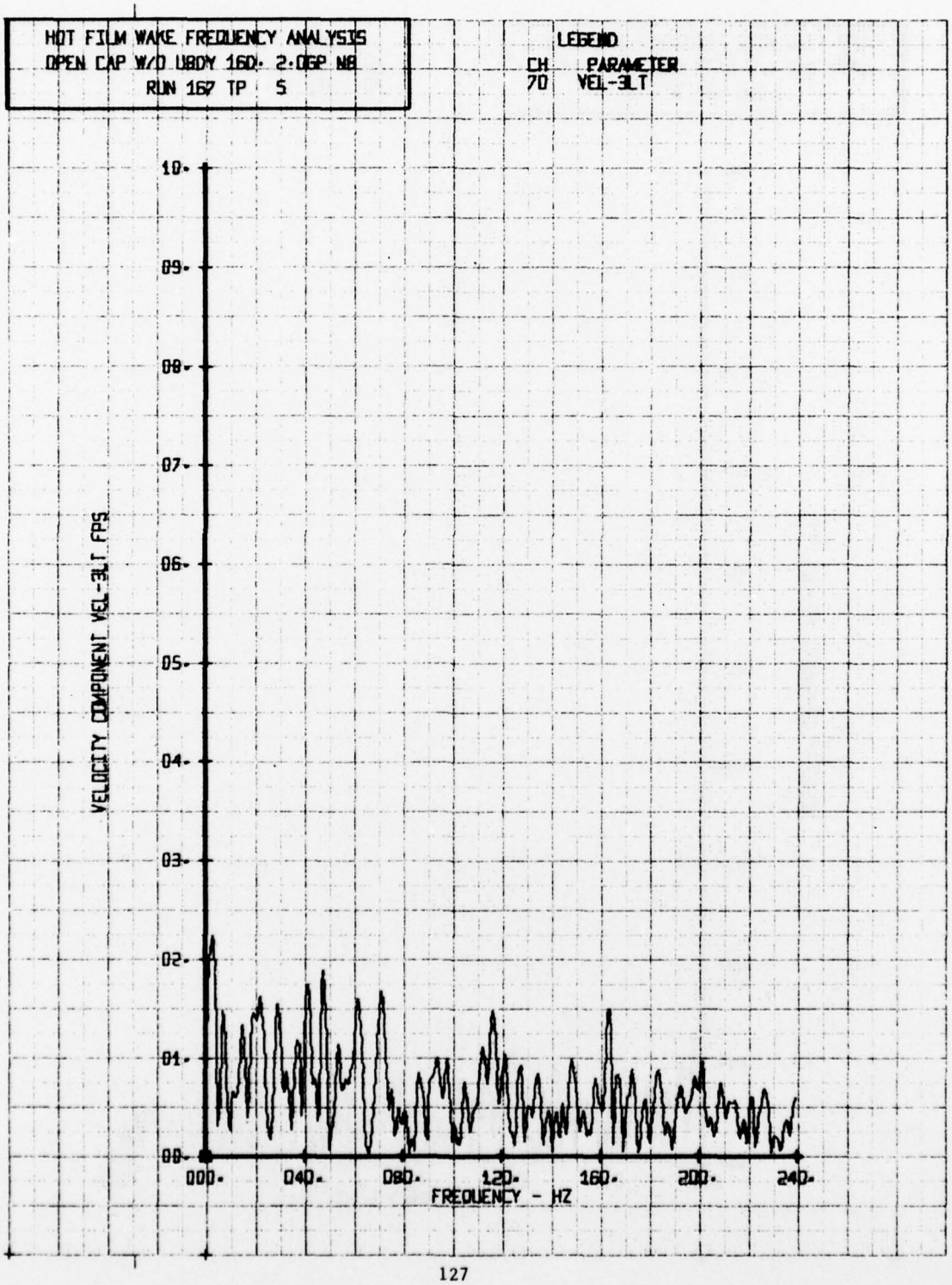
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/O UBDY 160. 2.0GP NB
RUN 167 TP 5
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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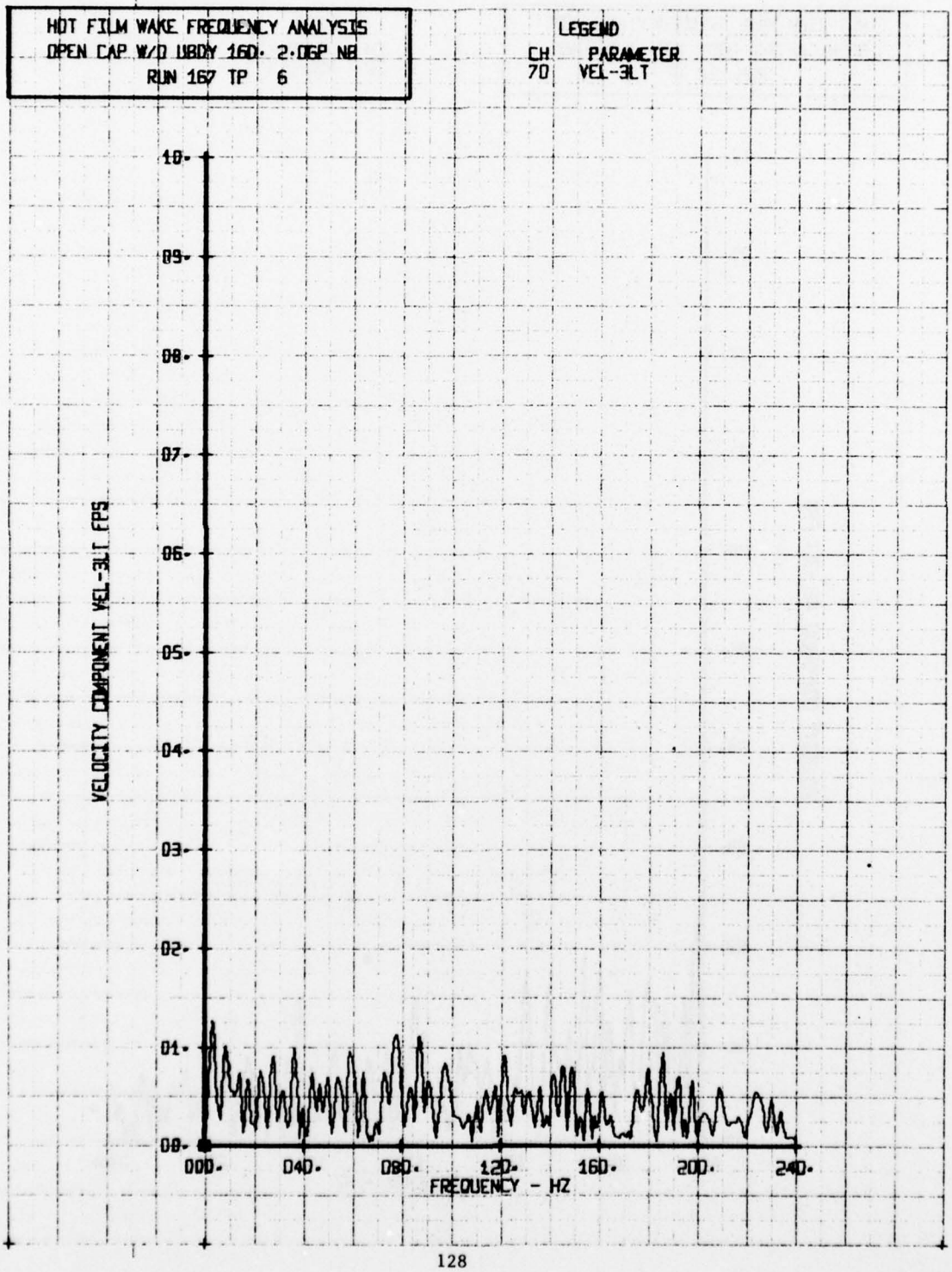
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W/D UBDY 16D. 2.DGP NB
RUN 167 TP 6
LEGEND
CH PARAMETER
7D VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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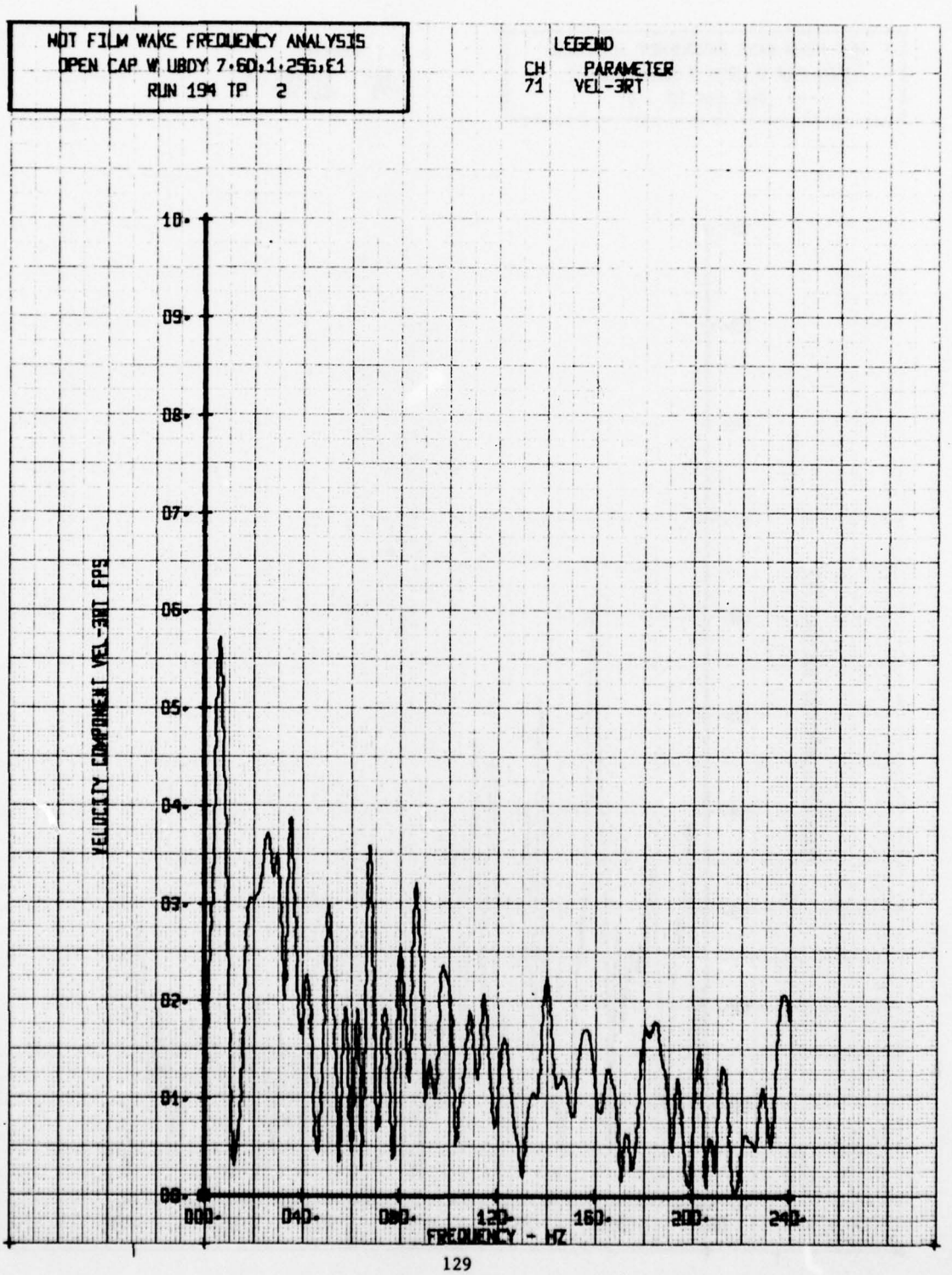
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 7.60,1.25G,E1
RUN 194 TP 2
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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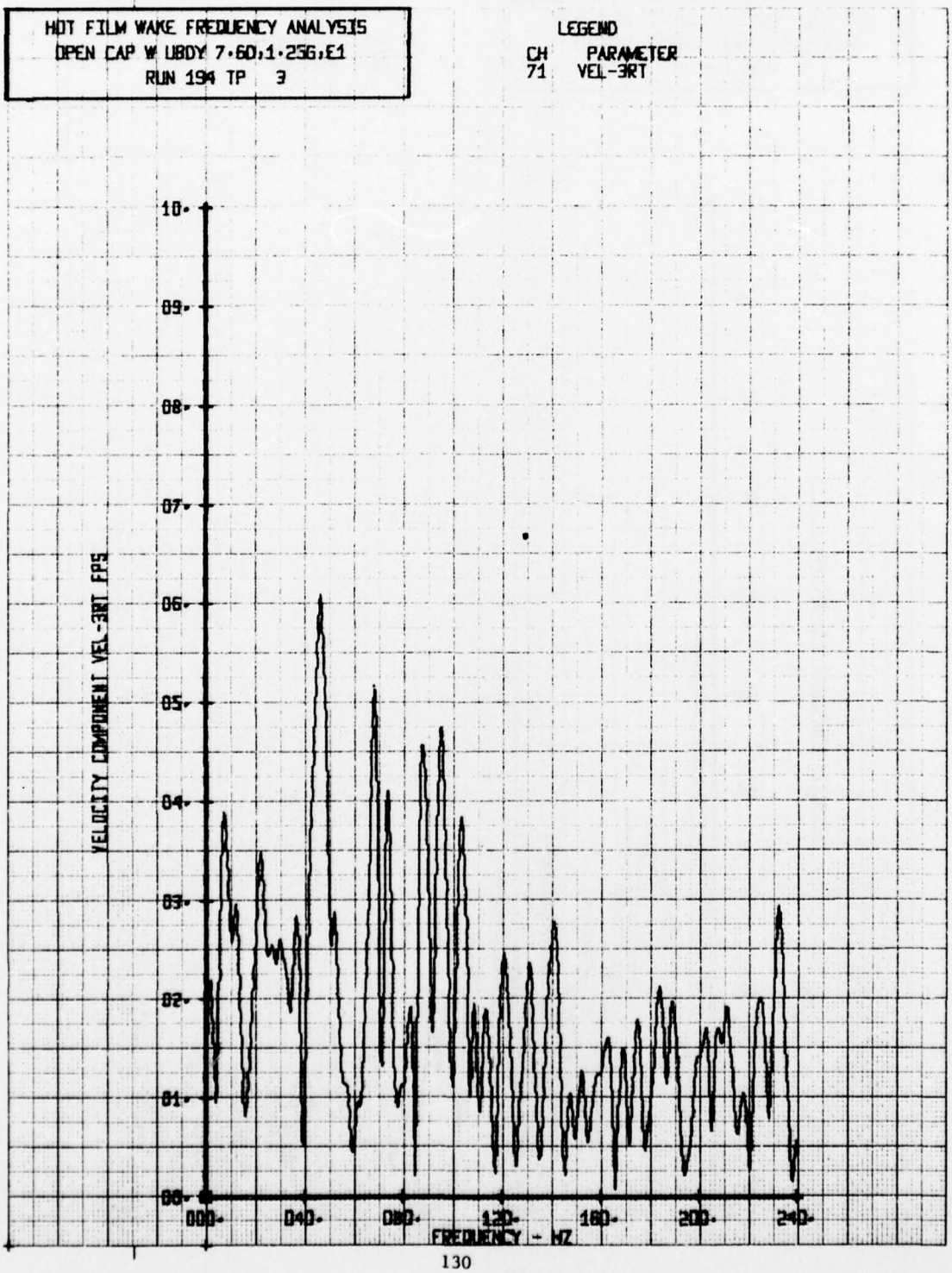
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 7.60;1.256;E1
RUN 194 TP 3
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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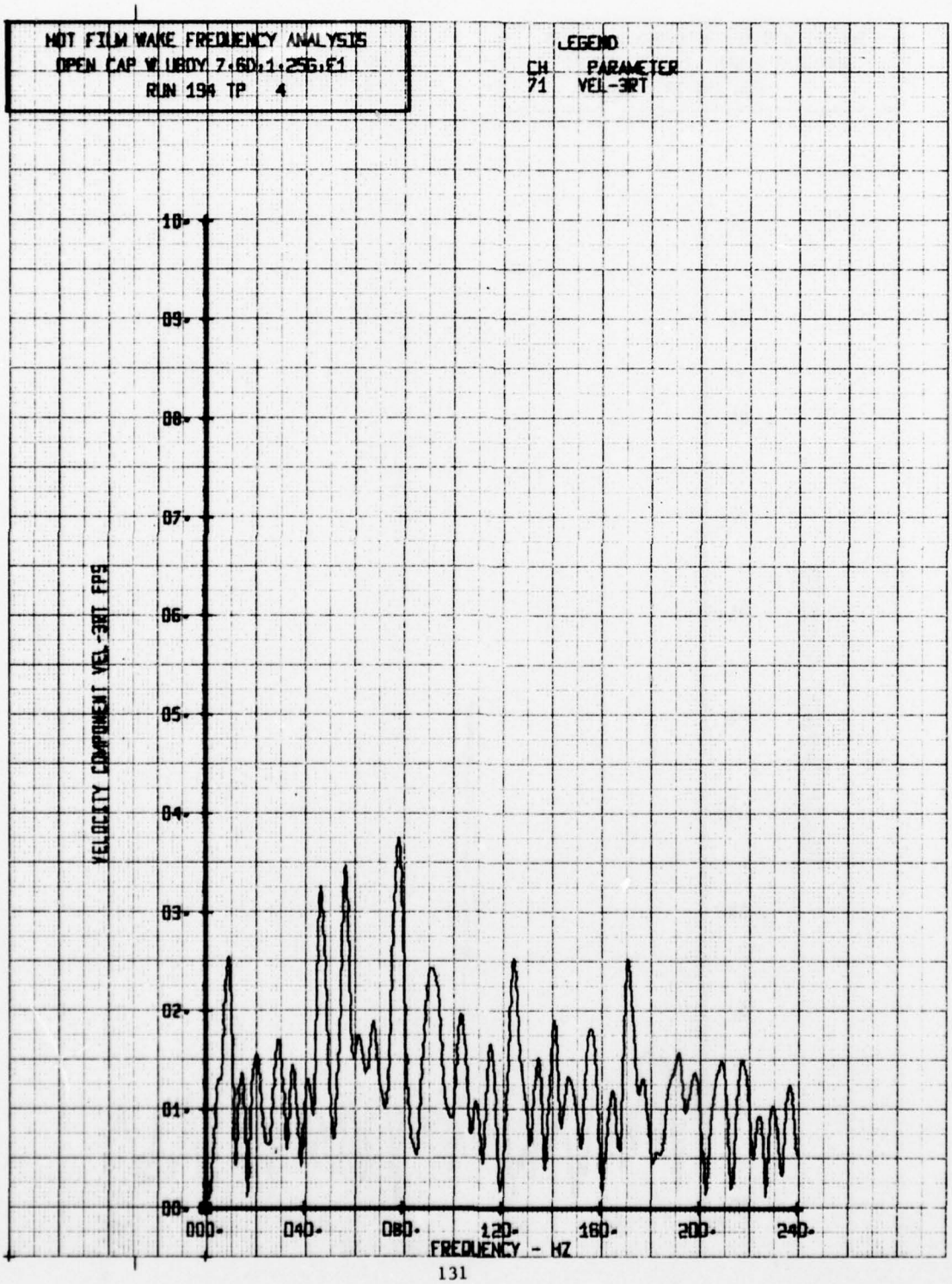
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 7.6D,1.25G,F1
RUN 194 TP 4
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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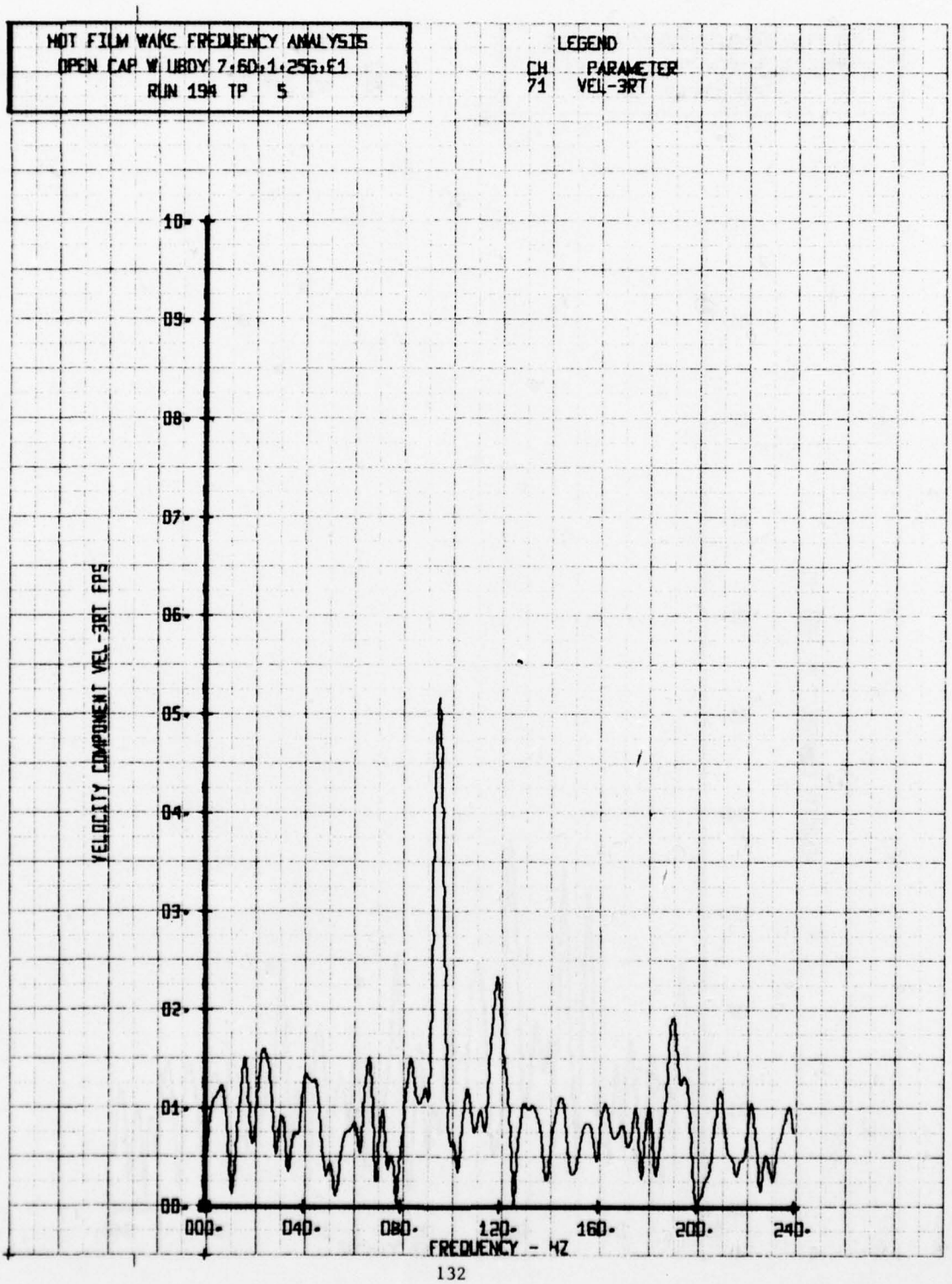
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 7.60,1.25G,E1
RUN 194 TP 5
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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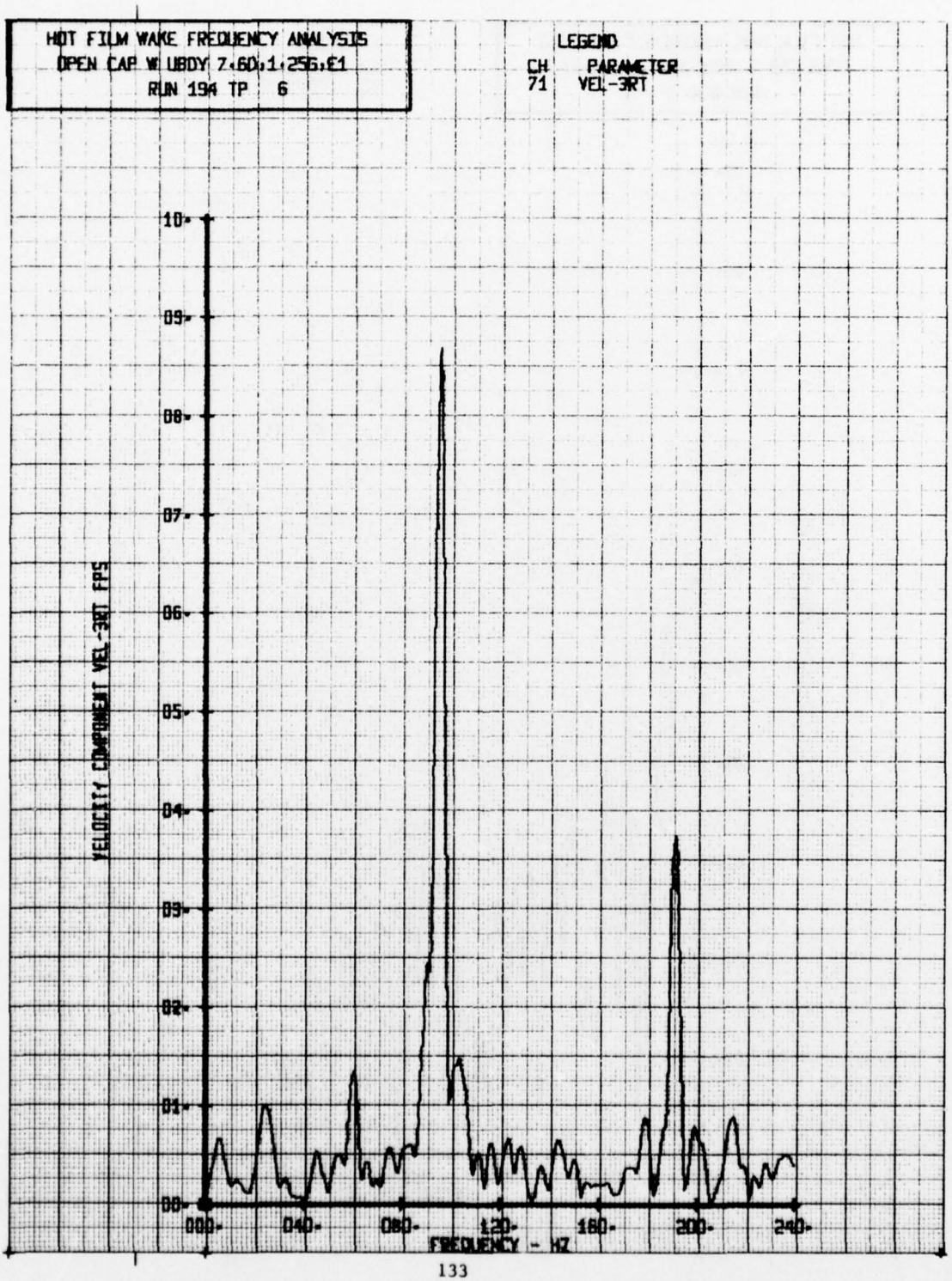
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 7.60,1.256,E1
RUN 194 TP 6
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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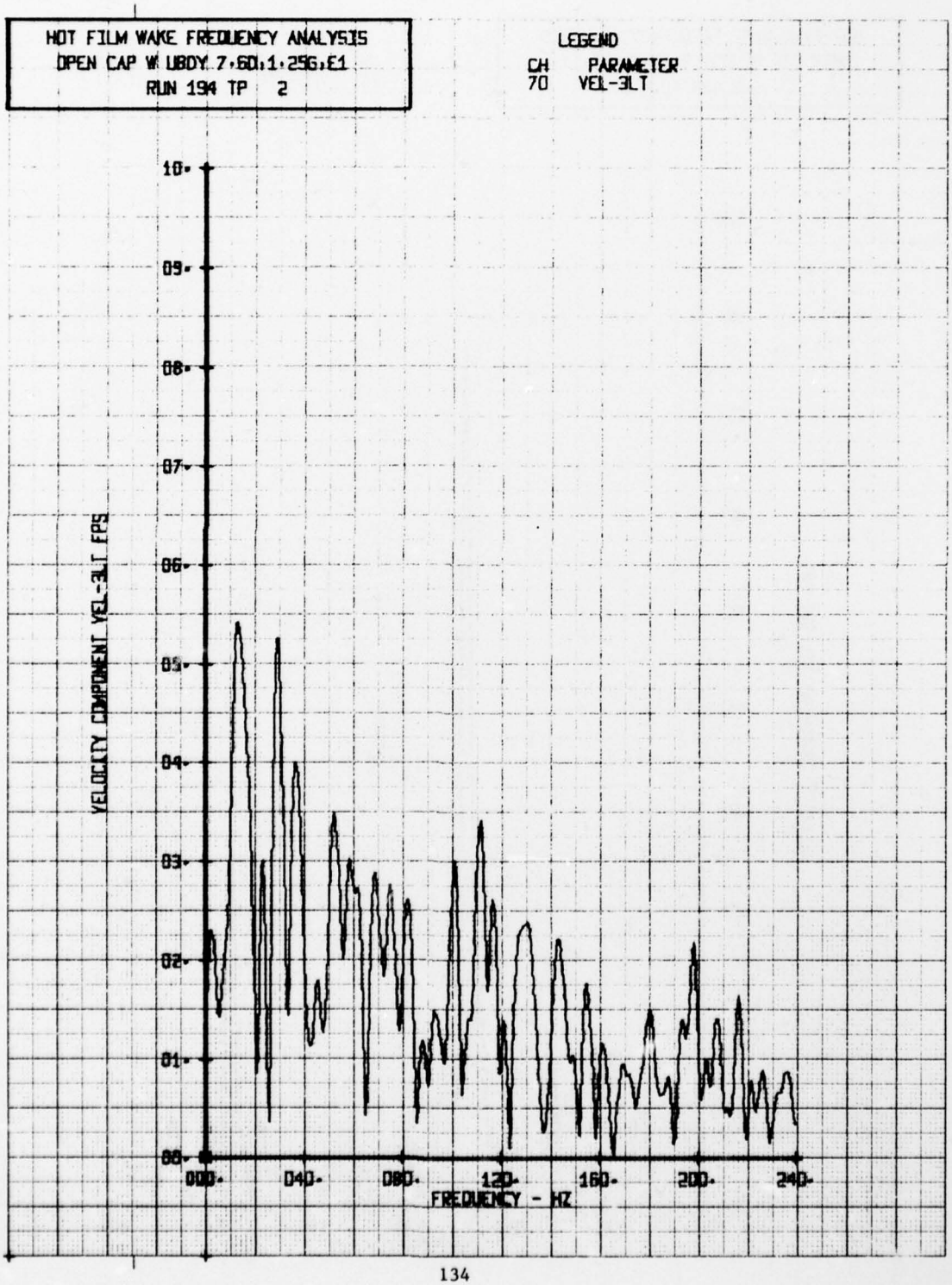
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 7.60,1.25G,E1
RUN 194 TP 2
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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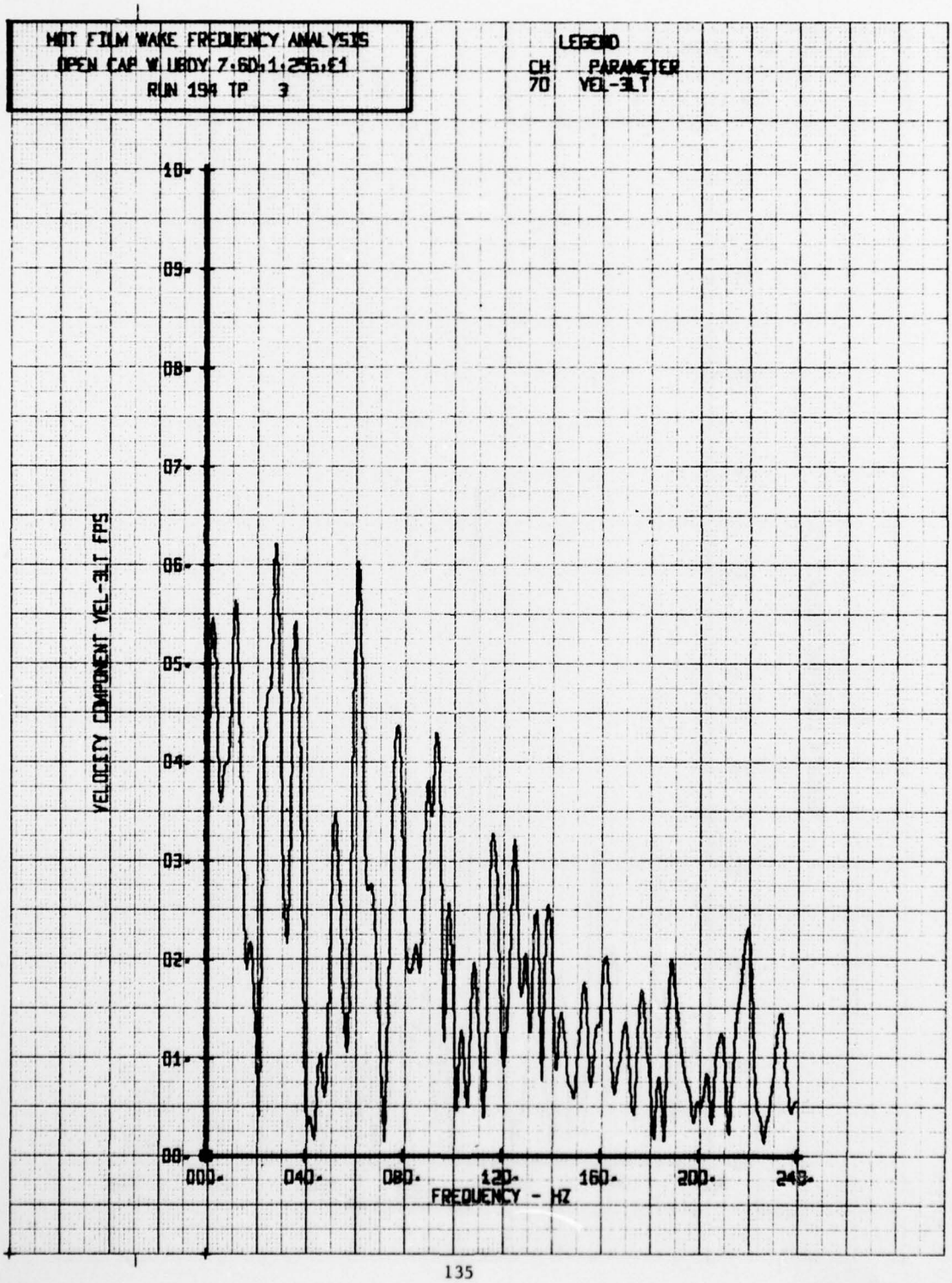
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 7.6D,1.25G,E1
RUN 194 TP 3
LEGEND
CH PARAMETER
70 VEL-3LT
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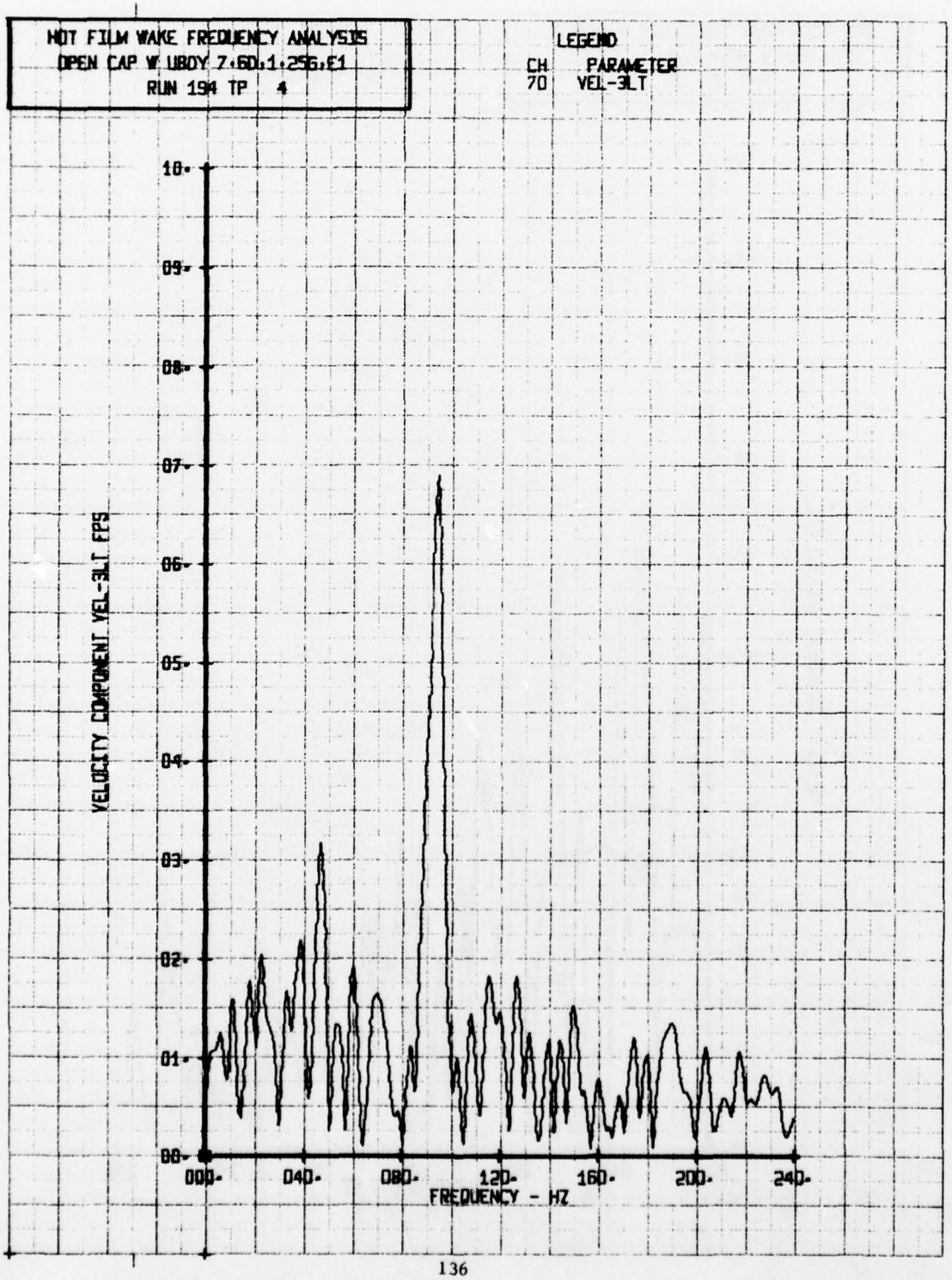
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 7.6D,1.25G,E1
RUN 194 TP 4
LEGEND
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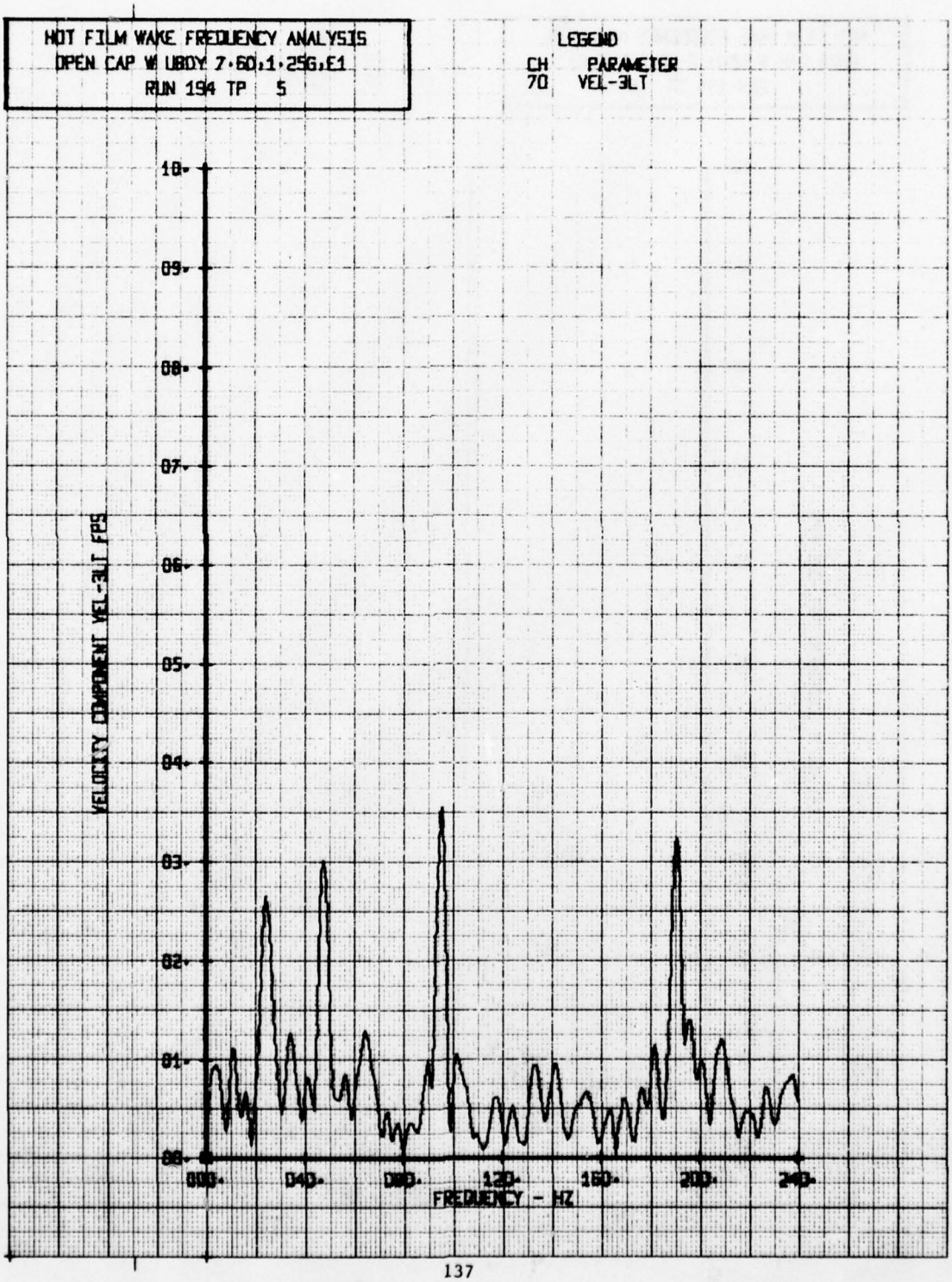
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 7.60,1.25G,E1
RUN 194 TP 5
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-3LT FPS
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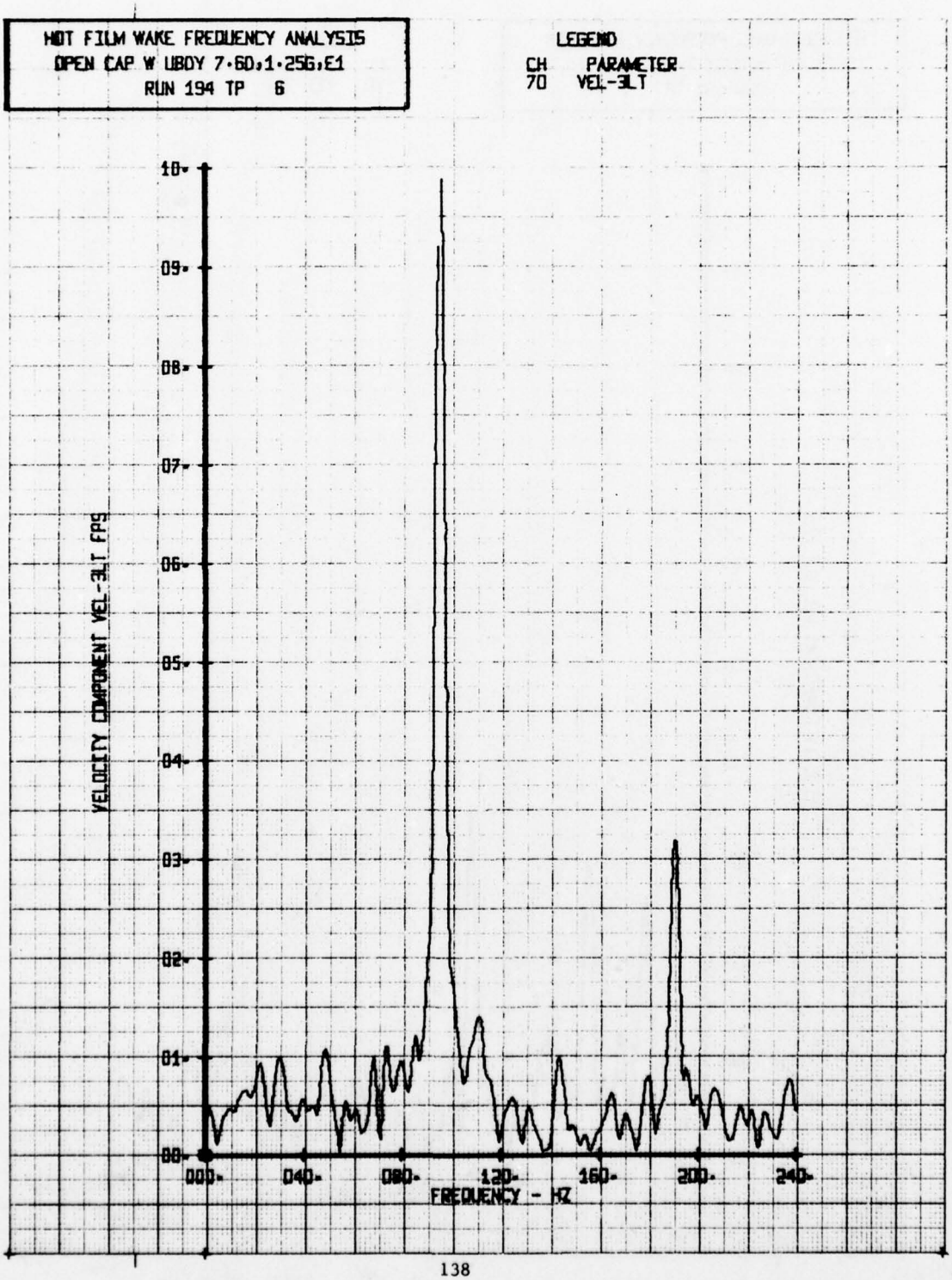
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 7.6D,1.25G,E1
RUN 194 TP 6
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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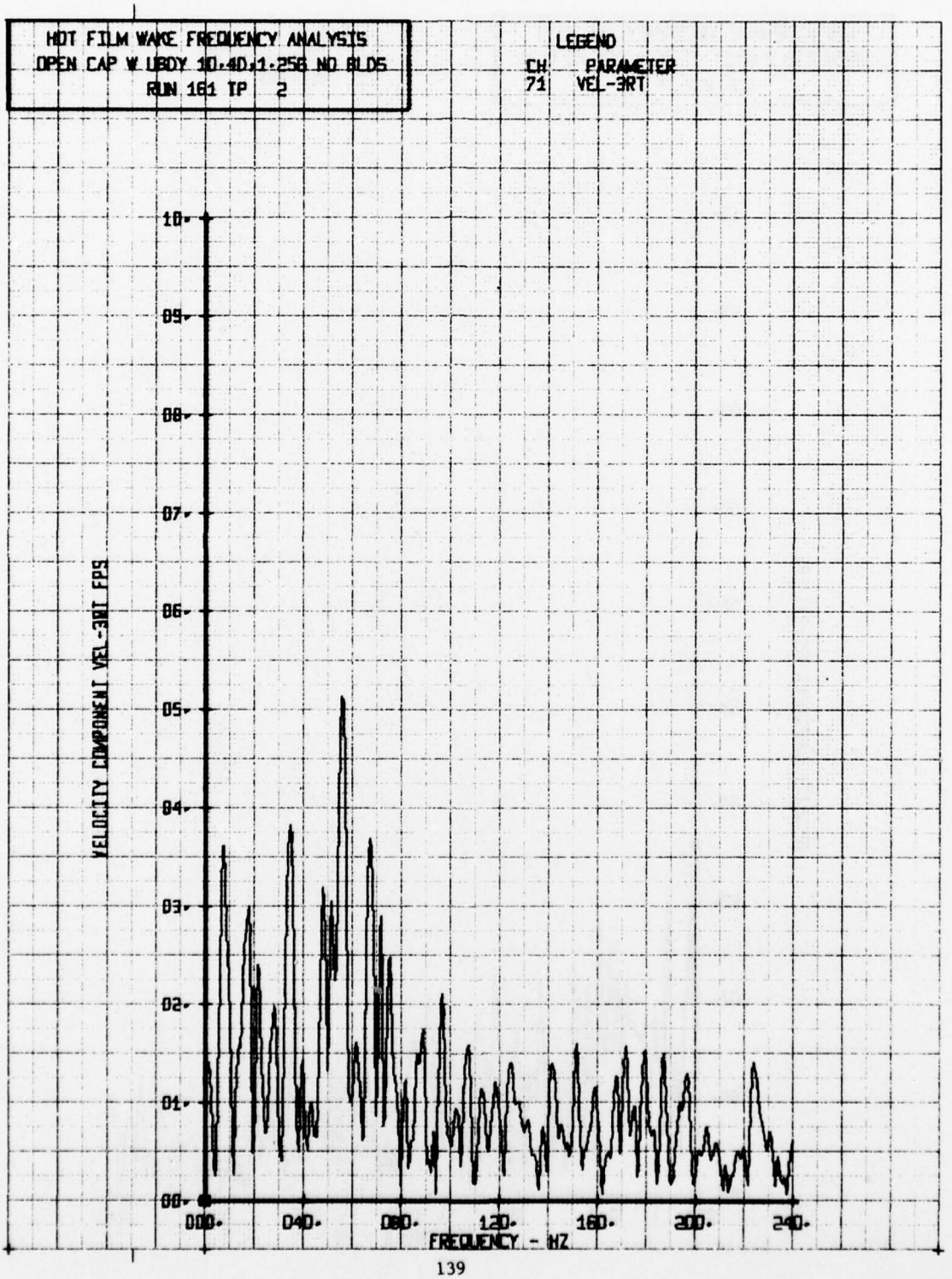
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBODY 10.4D,1.25G NO BLDS
RUN 161 TP 2
LEGEND
CH PARAMETER
71 VEL-3RT
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VELOCITY COMPONENT VEL-3RT FPS
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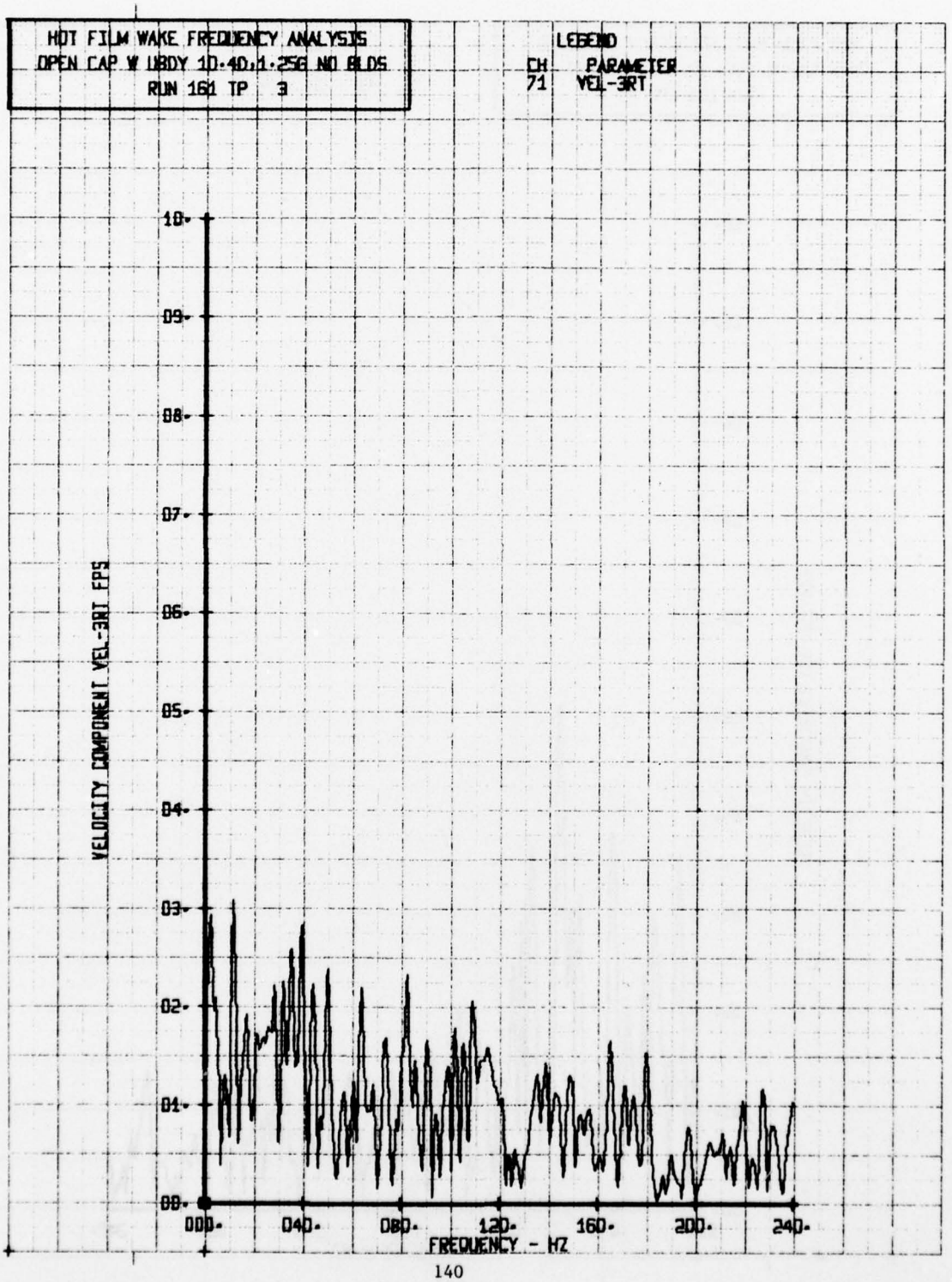
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.4D,1.25G NO BLDS
RUN 161 TP 3
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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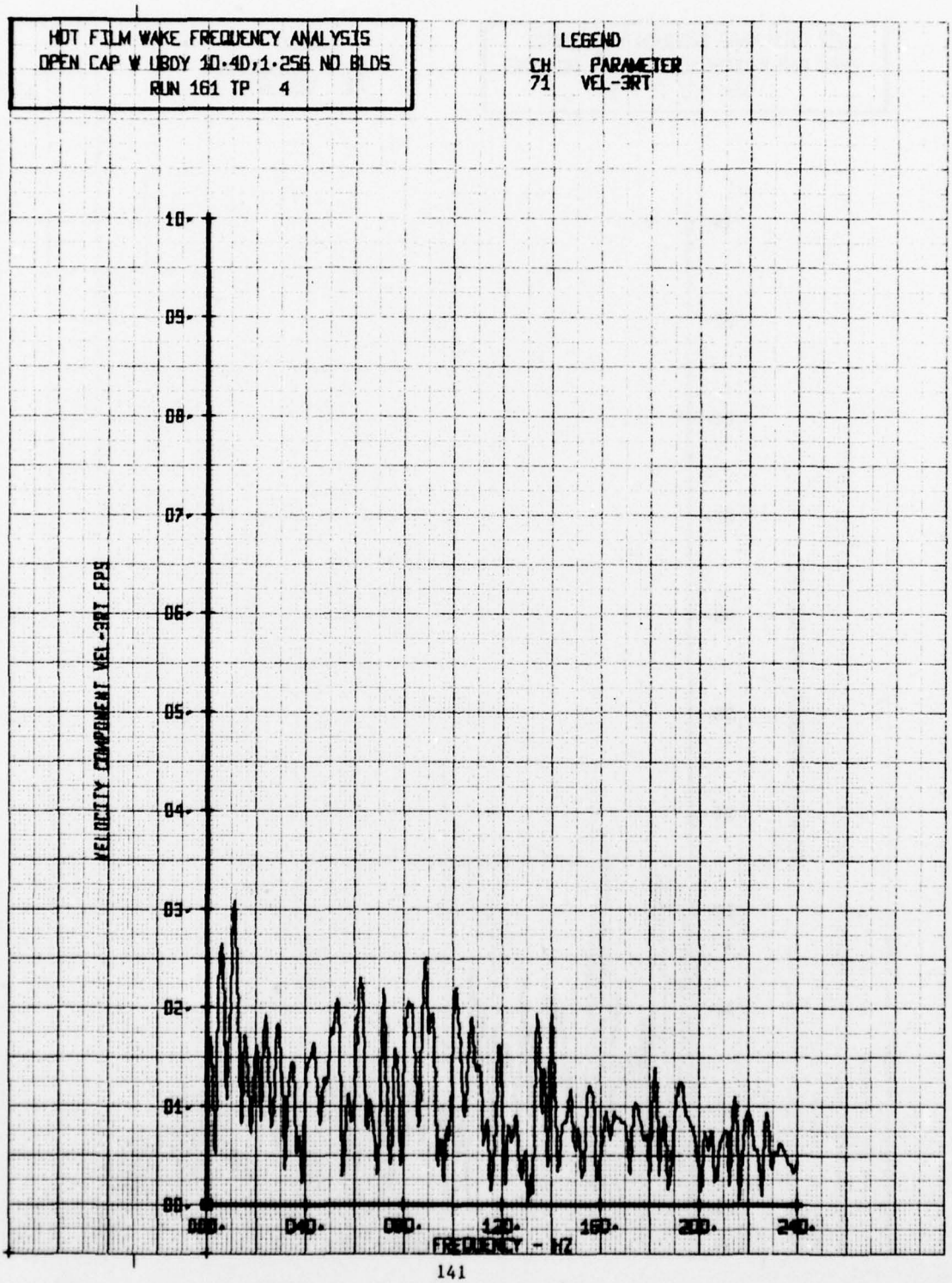
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.4D,1.25B NO BLDS
RUN 161 TP 4
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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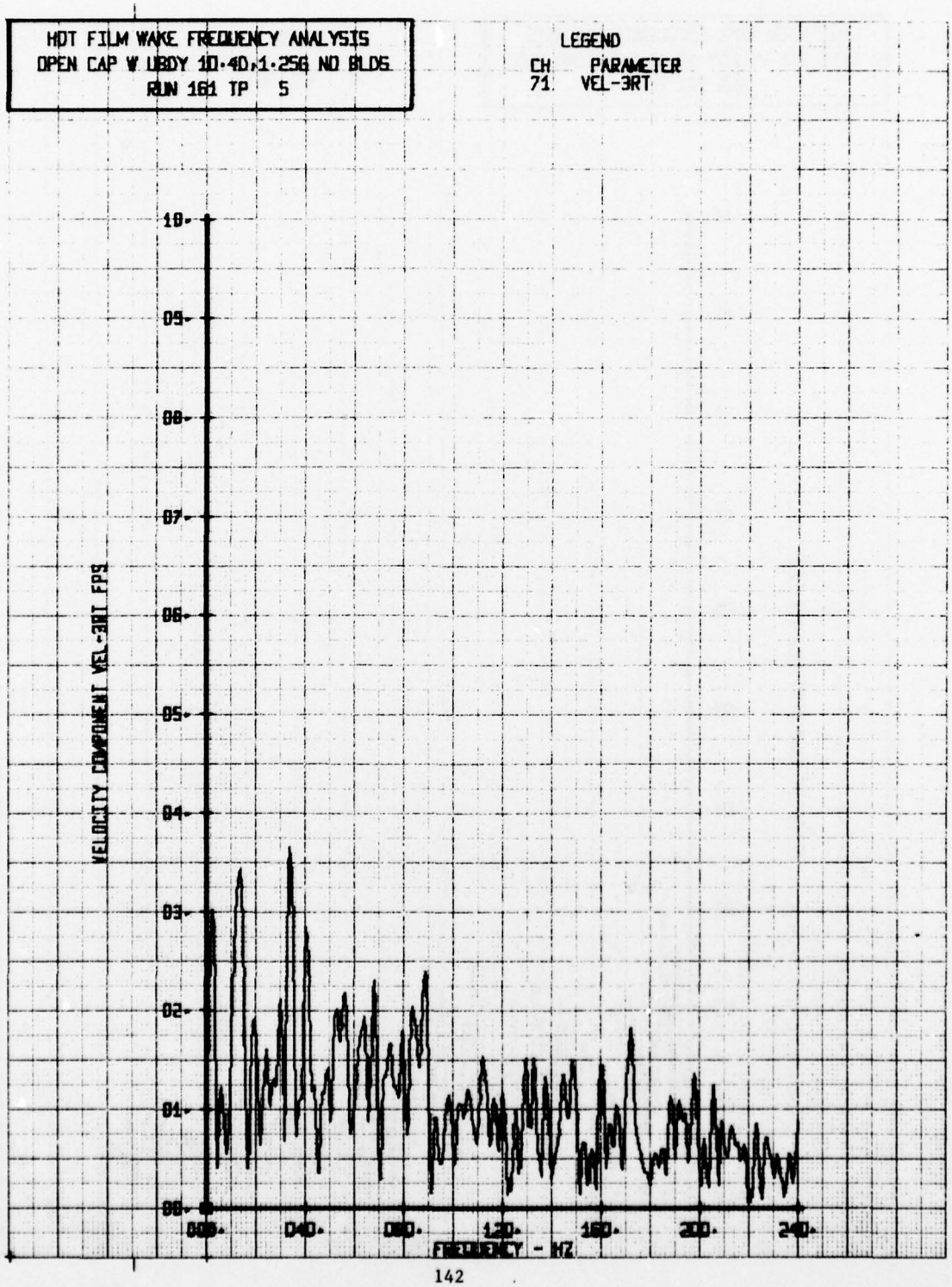
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.40,1.256 NO BLDG
RUN 161 TP 5
LEGEND
CH PARAMETER
71. VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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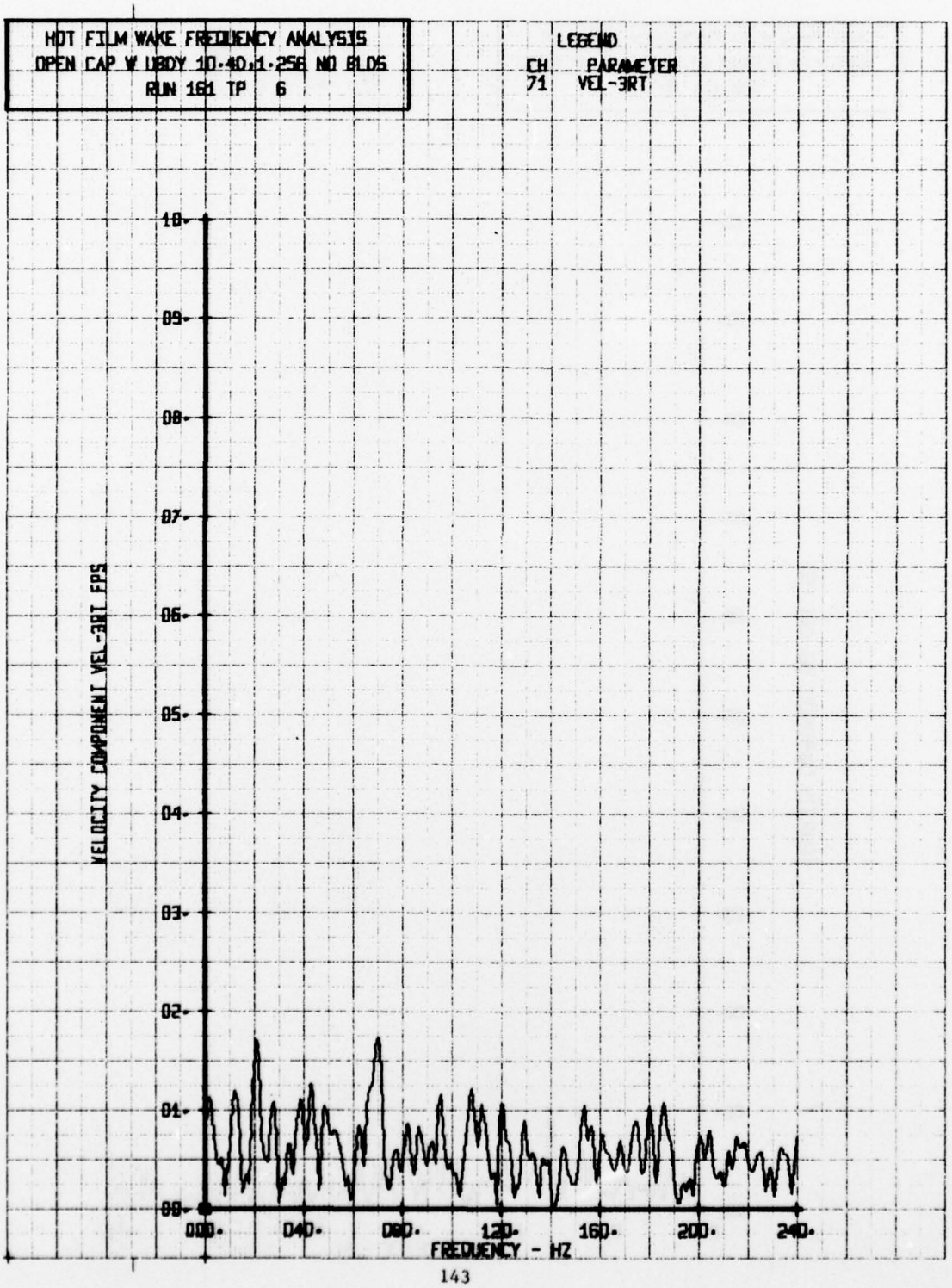
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.40.1.256 NO BLDS
RUN 161 TP 6
LEGEND
CH PARAMETER
71 VEL-3RT
10.
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VELOCITY COMPONENT VEL-3RT FPS
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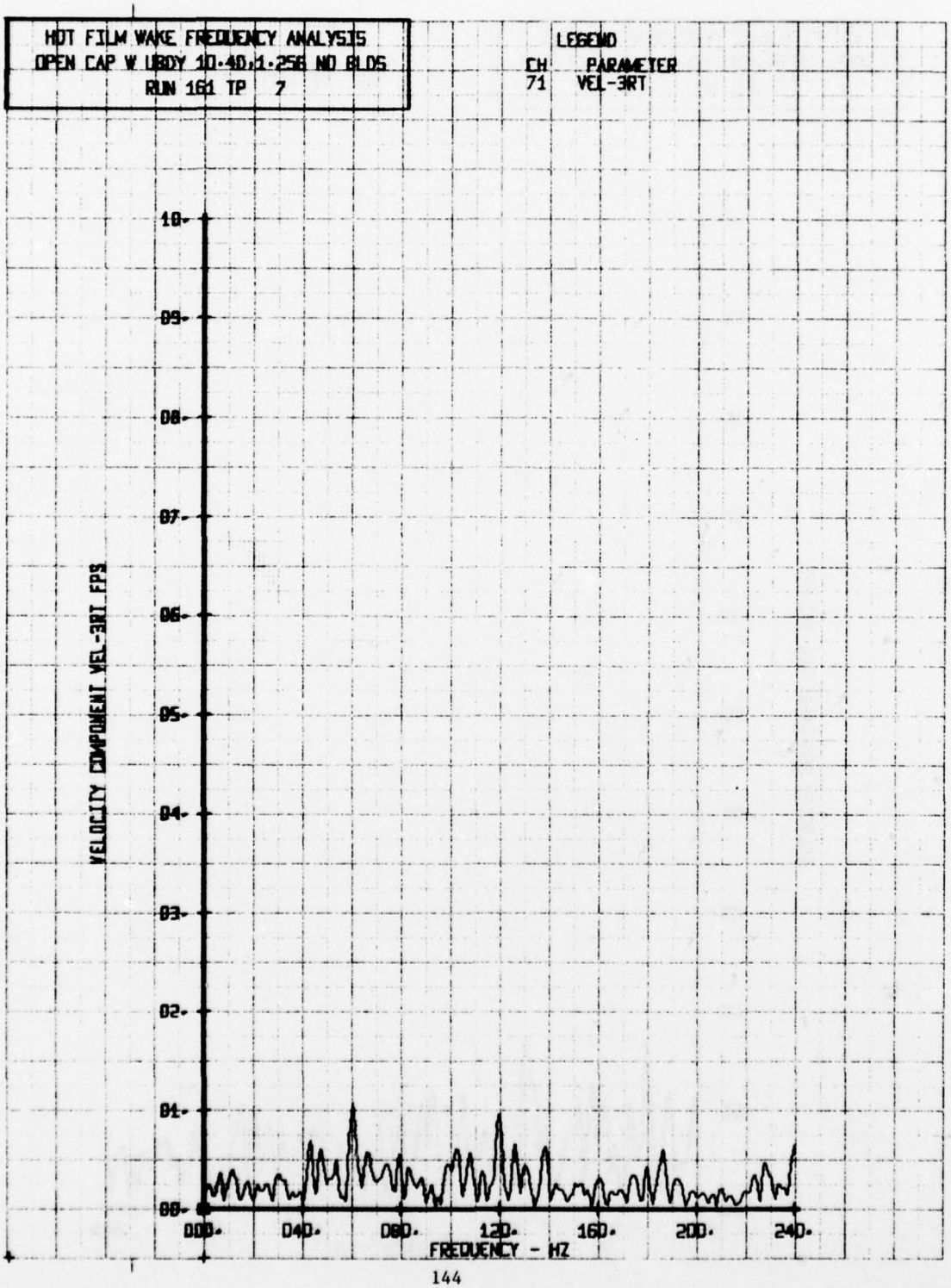
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-256 NO BLDS
RUN 161 TP 7
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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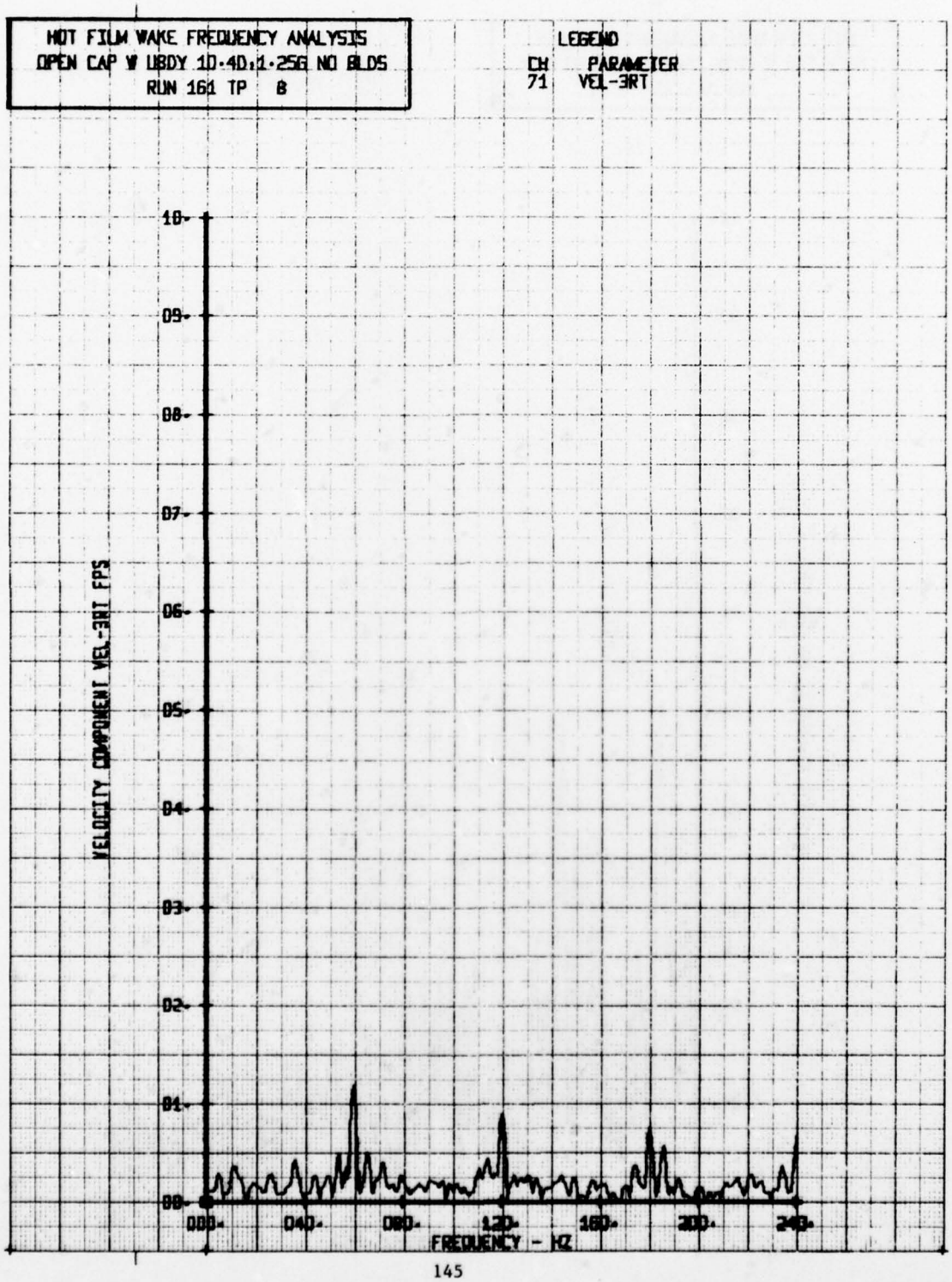
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBDY 1D·4D;1·25G NO BLDS
RUN 161 TP 8
LEGEND
CH PARAMETER
71 VEL-3RT
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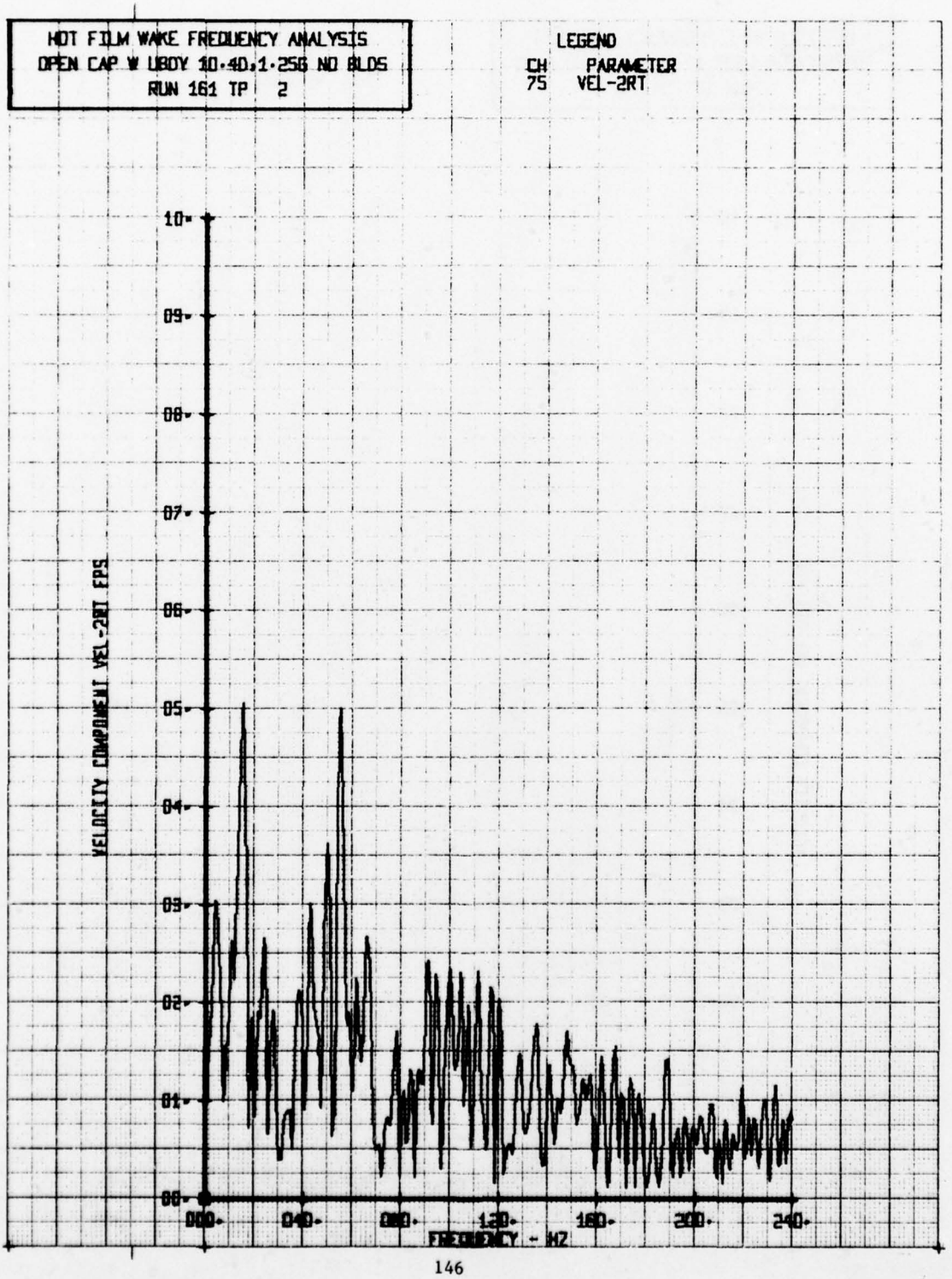
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10.40,1.256 NO BLDS
RUN 161 TP 2
LEGEND
CH PARAMETER
75 VEL-2RT
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VELOCITY COMPONENT VEL-2RT FPS
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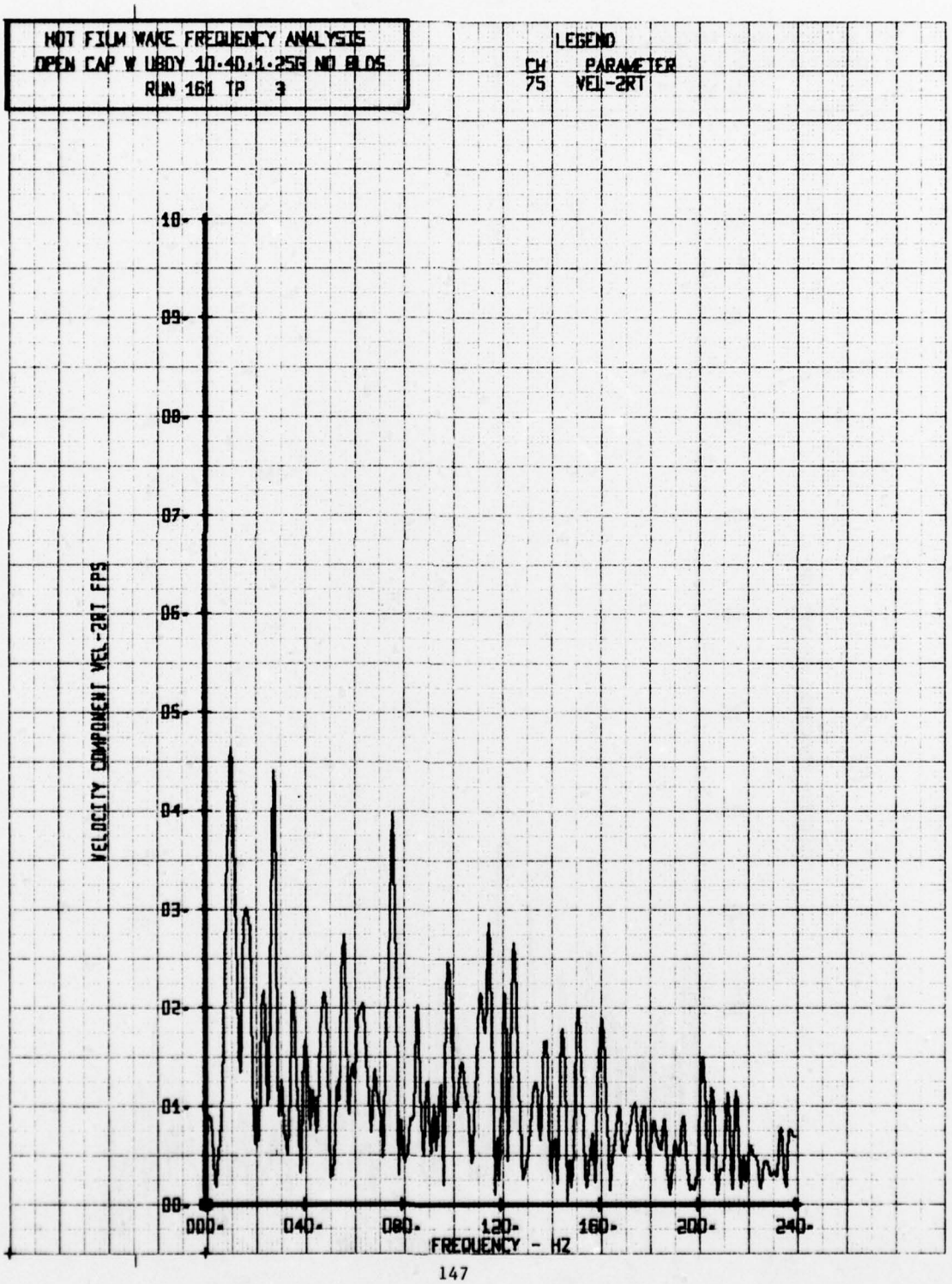
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10.40,1.25G NO BLOS
RUN 161 TP 3
LEGEND
CH PARAMETER
75 VEL-2RT
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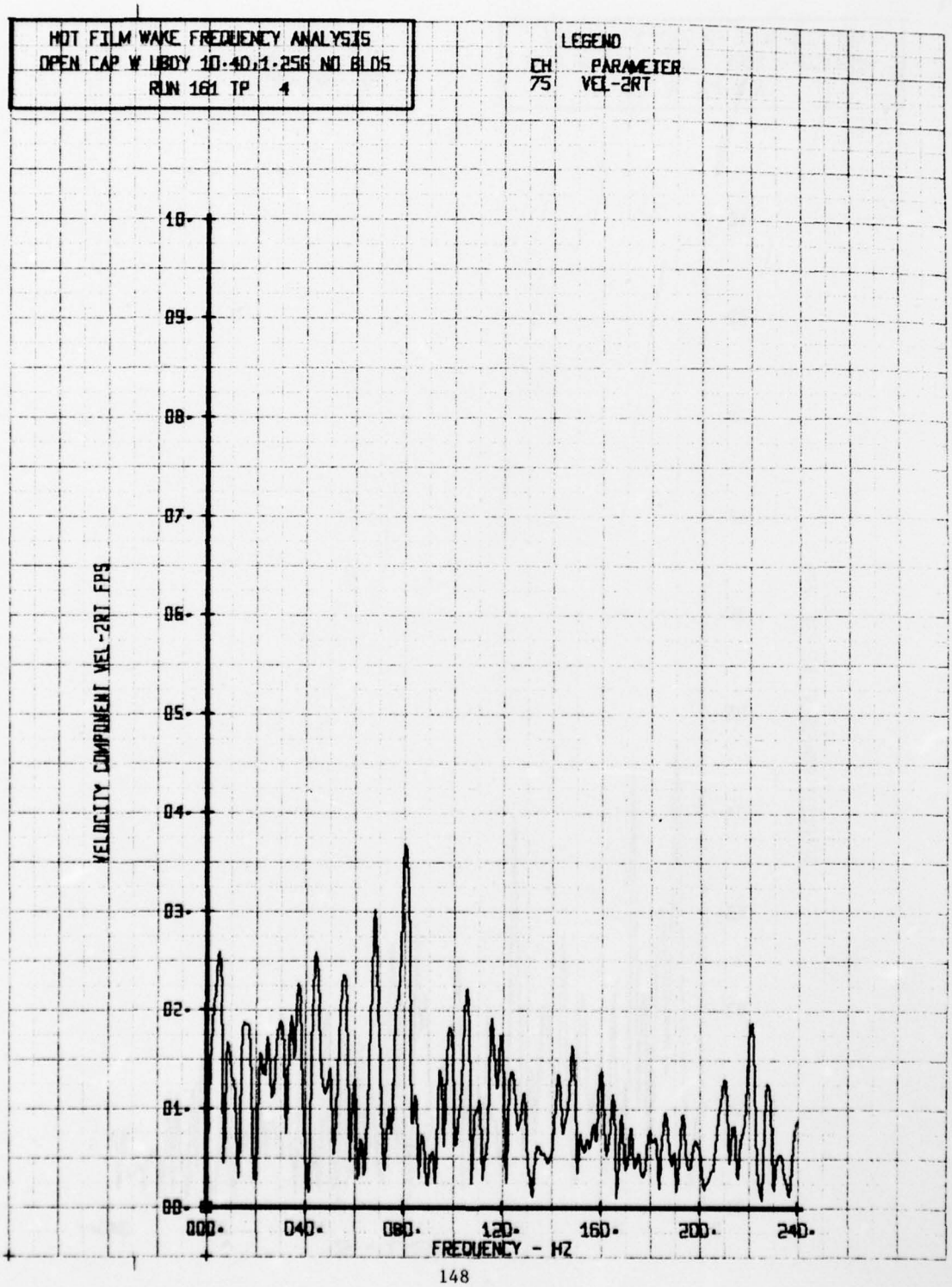
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.40.1.25G NO BLDS
RUN 161 TP 4
LEGEND
CH PARAMETER
75 VEL-2RT
VELOCITY COMPONENT VEL-2RT FPS
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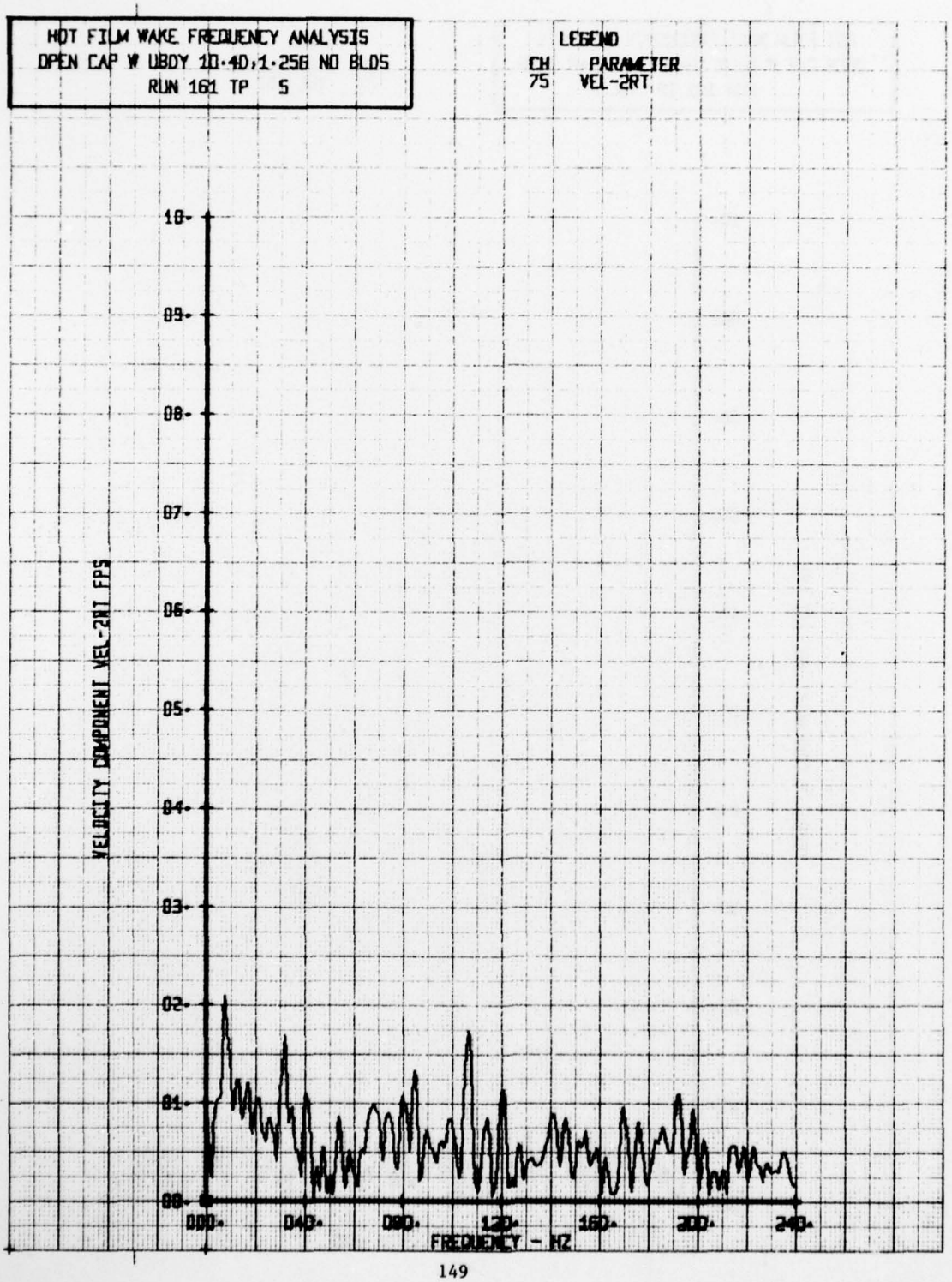
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.4D,1.25B NO BLDS
RUN 161 TP 5
LEGEND
CH PARAMETER
75 VEL-2RT
VELOCITY COMPONENT VEL-2RT FPS
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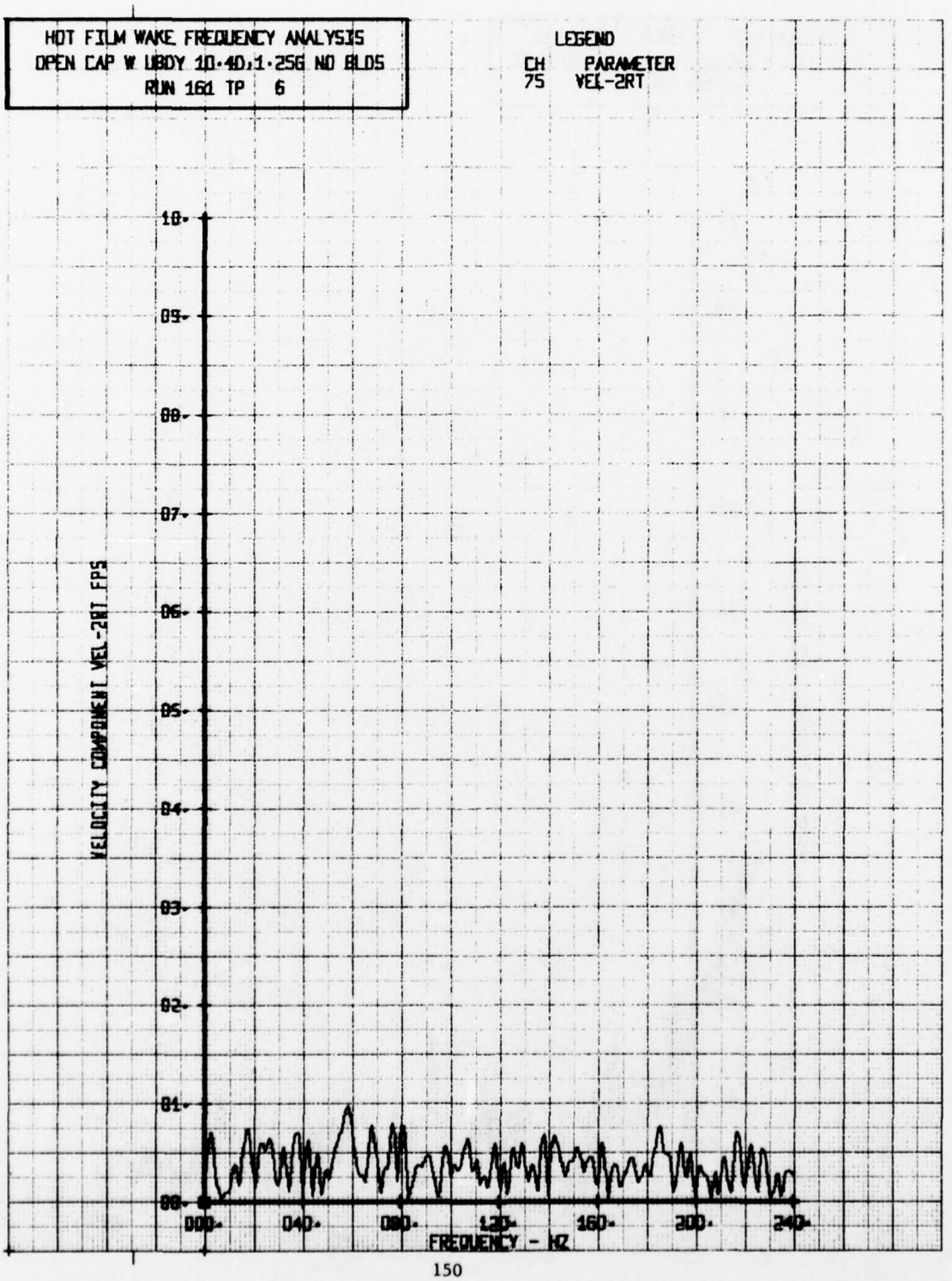
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBODY 10.40,1.25G NO BLDS
RUN 161 TP 6
LEGEND
CH PARAMETER
75 VEL-2RT
VELOCITY COMPONENT VEL-2RT FPS
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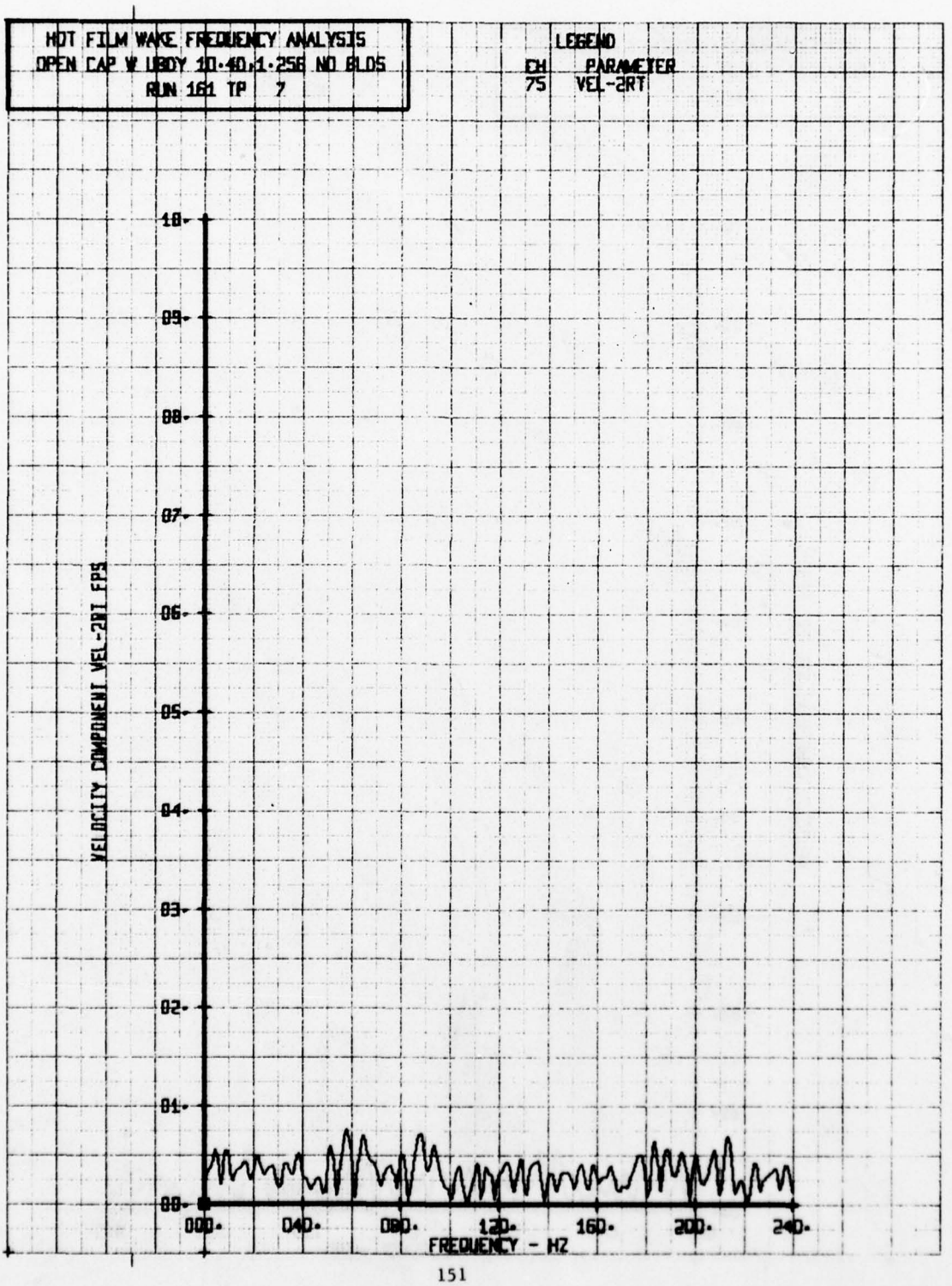
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBODY 10.40.1.256 NO BLDS
RUN 161 TP 7
LEGEND
CH PARAMETER
75 VEL-2RT
VELOCITY COMPONENT VEL-2RT FPS
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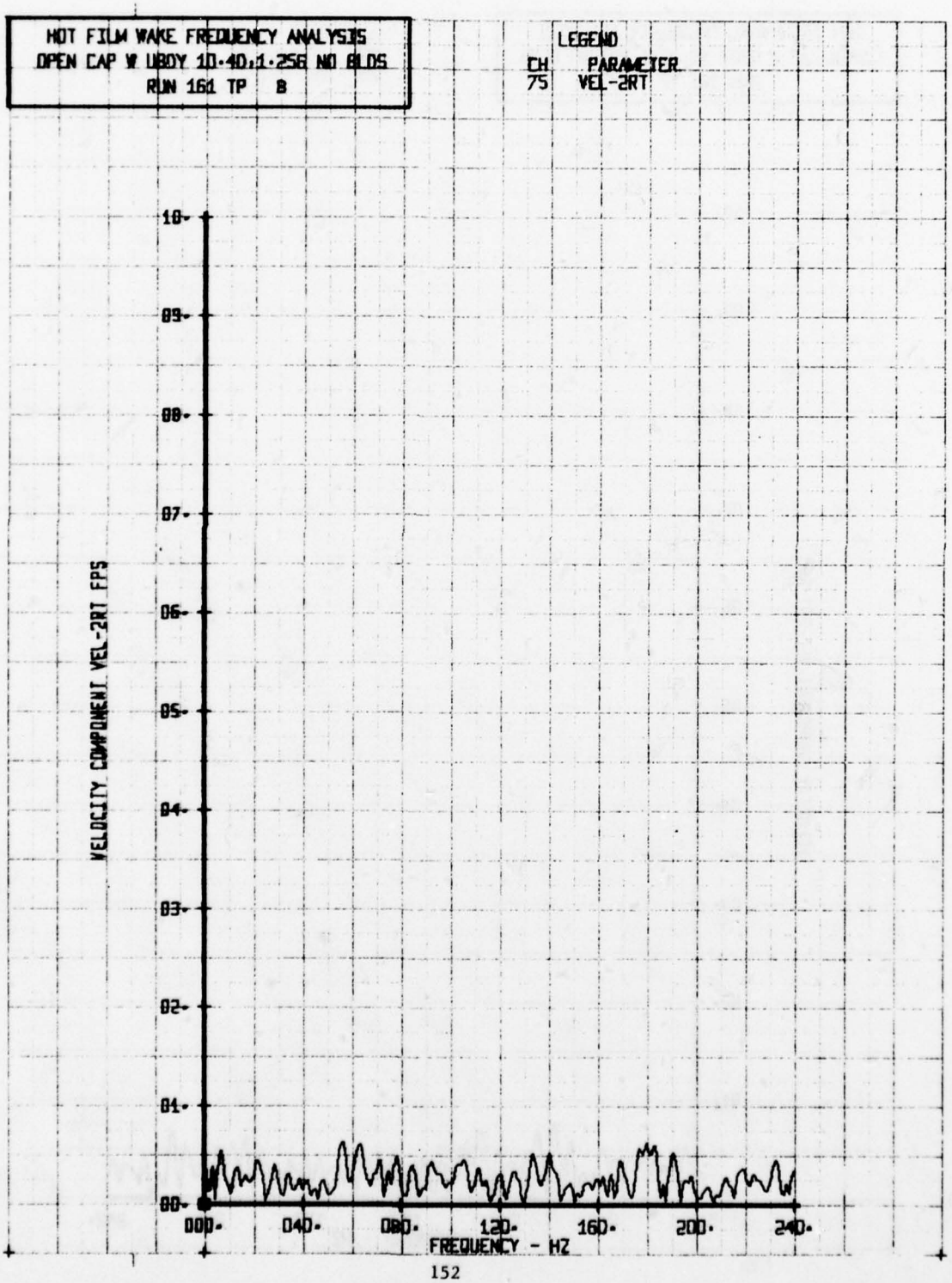
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10-40,1-256 NO BLDS
RUN 161 TP B
LEGEND
CH PARAMETER
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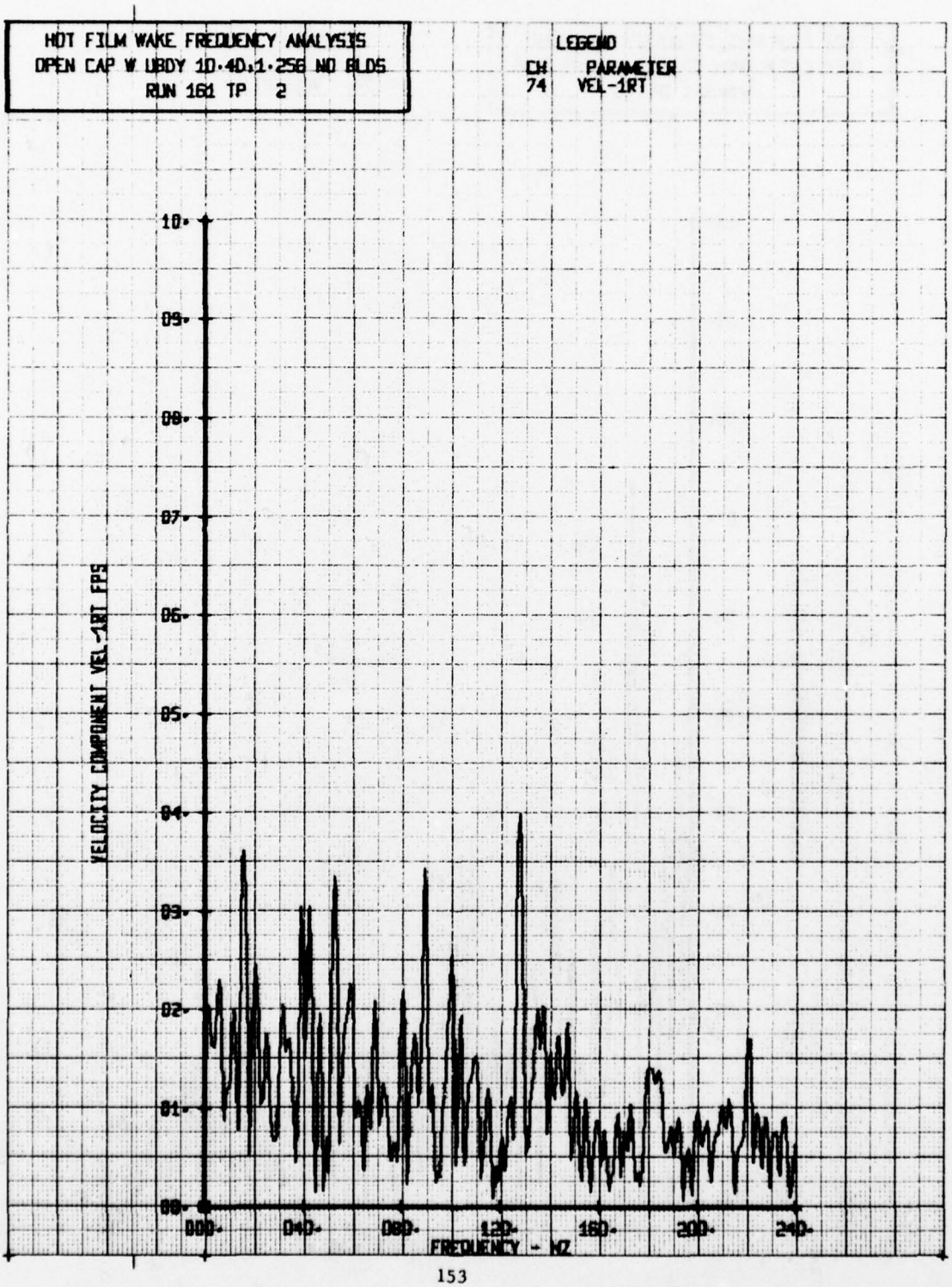
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 1D-4D-1-256 NO BLDS
RUN 161 TP 2
LEGEND
CH PARAMETER
74 VEL-1RT
VELOCITY COMPONENT VEL-1RT FPS
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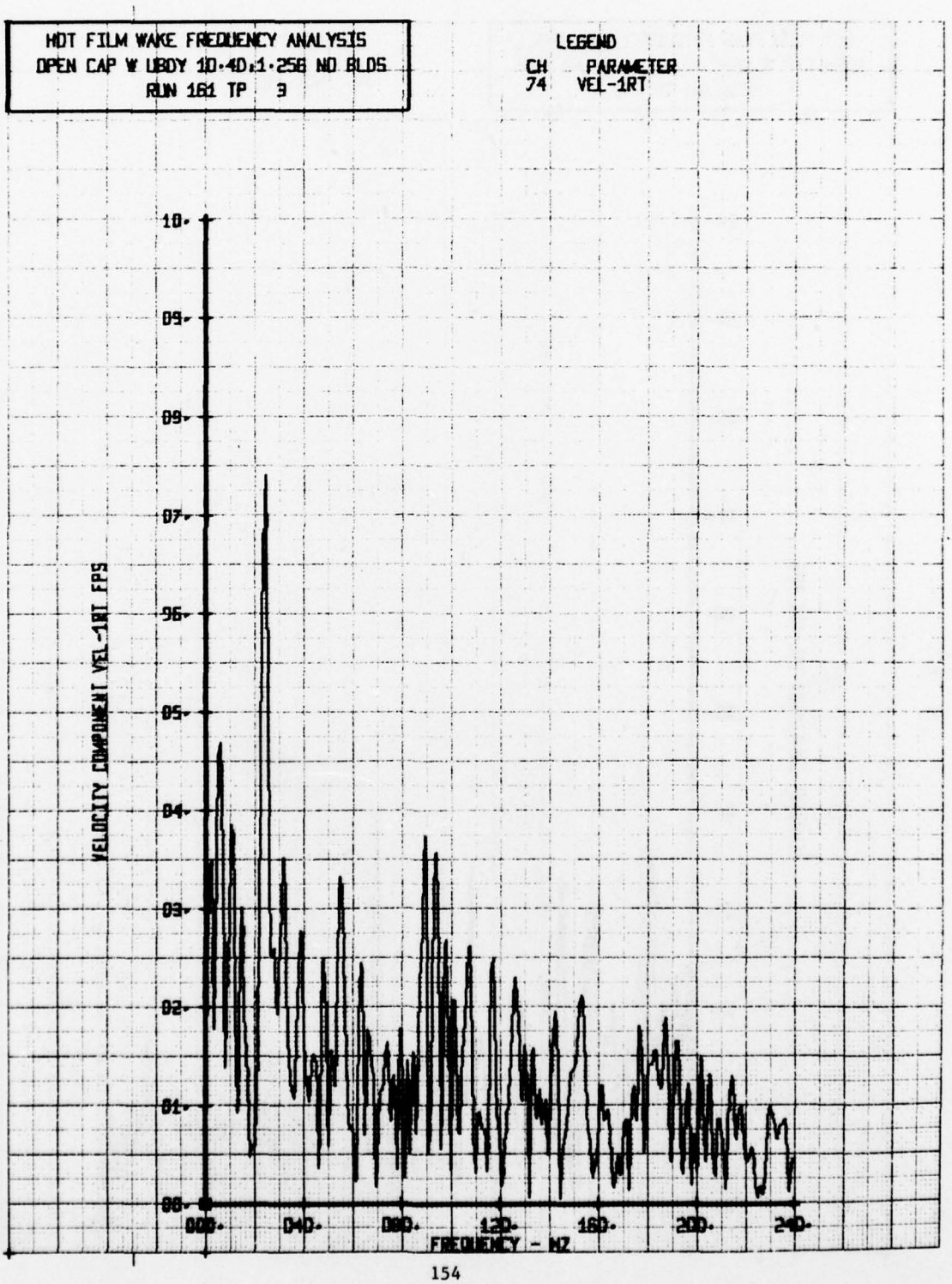
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10·4D·1·256 NO BLDS
RUN 161 TP 3
LEGEND
CH PARAMETER
74 VEL-1RT
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VELOCITY COMPONENT VEL-1RT FPS
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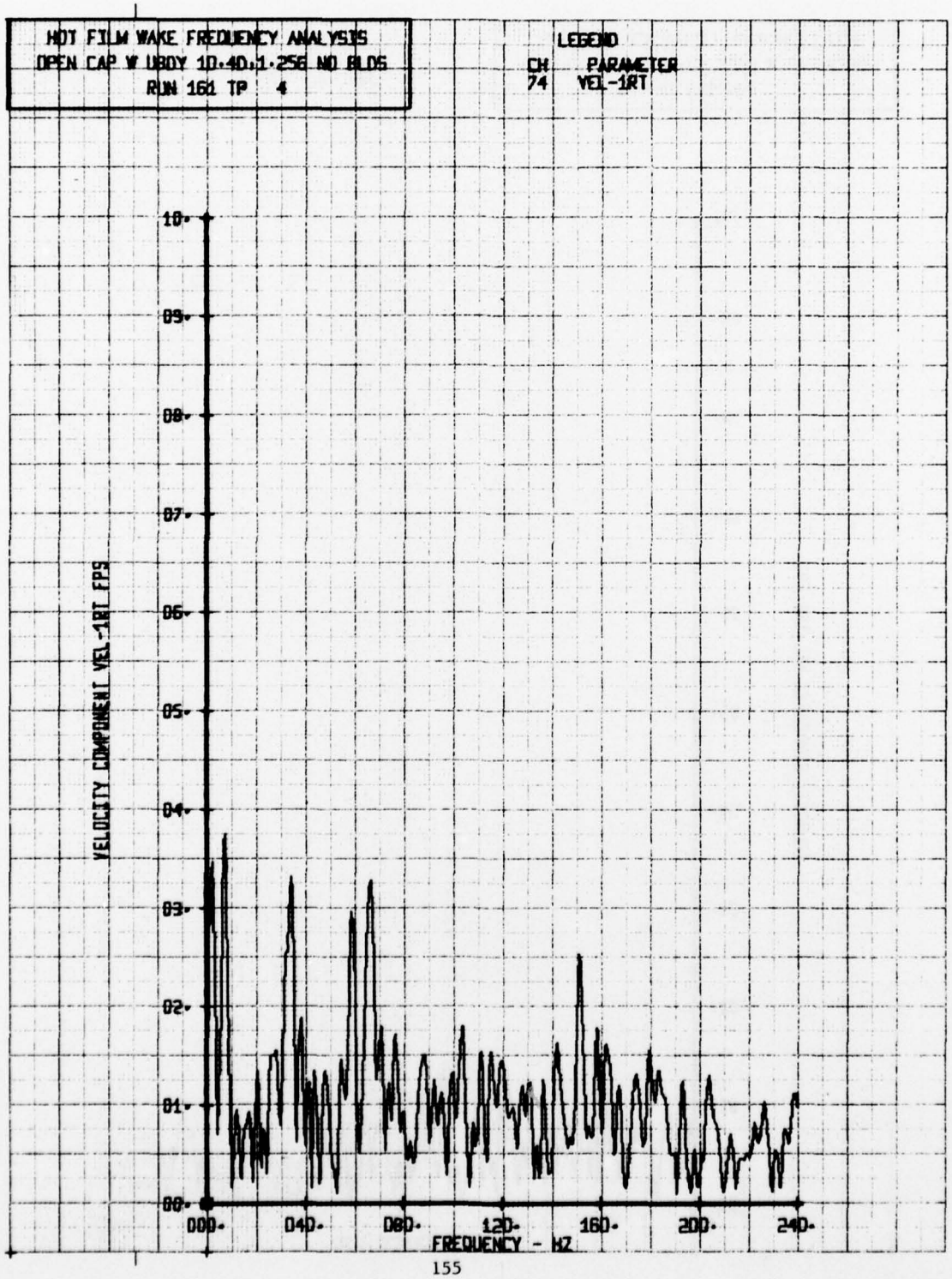
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10.40.1.256 NO BLDG
RUN 161 TP 4
LEGEND
CH PARAMETER
74 VEL-1RT
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VELOCITY COMPONENT VEL-1RT FPS
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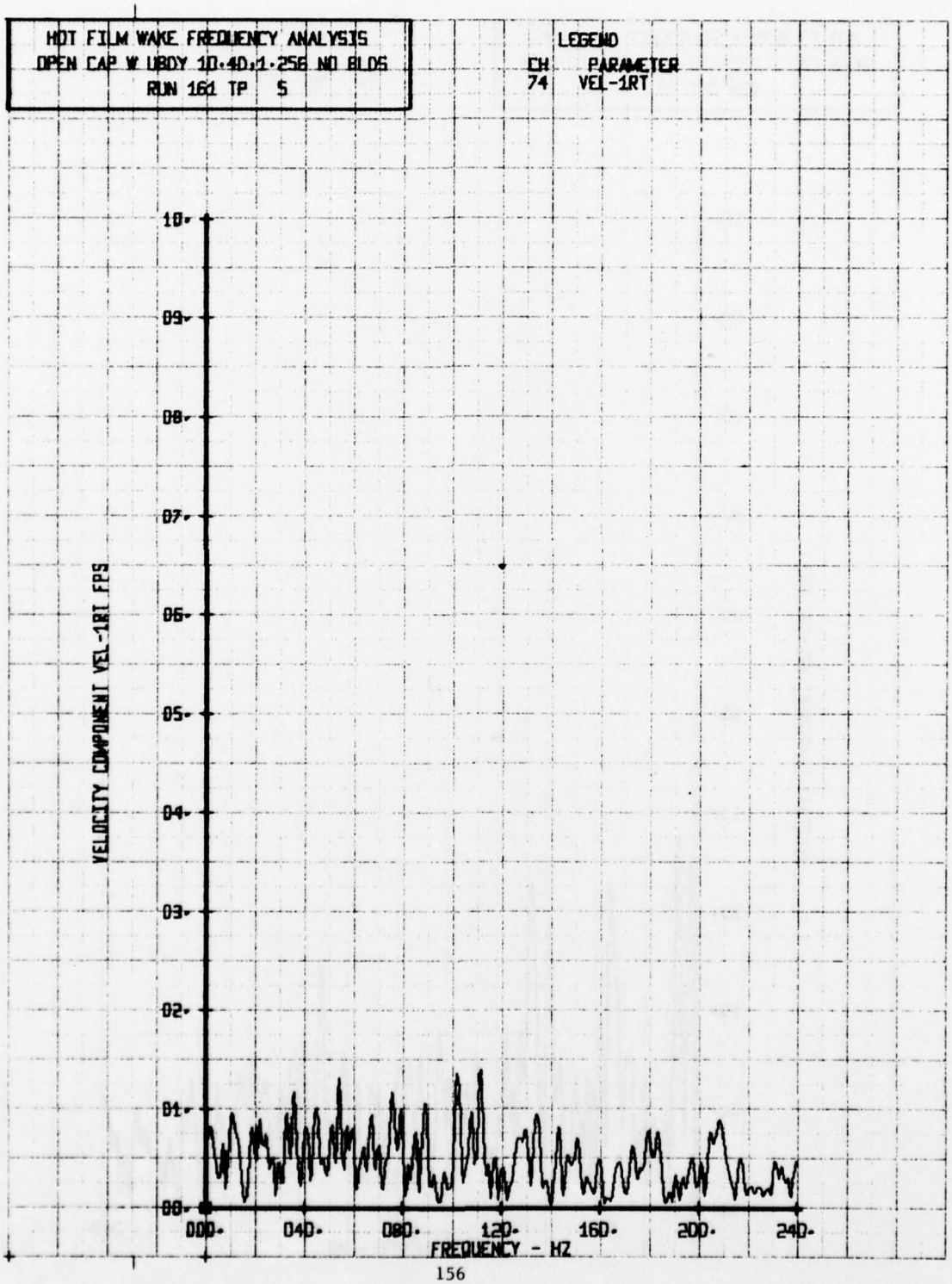
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.40,1.256 NO BLDS
RUN 161 TP 5
LEGEND
CH PARAMETER
74 VEL-1RT
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VELOCITY COMPONENT VEL-1RT FPS
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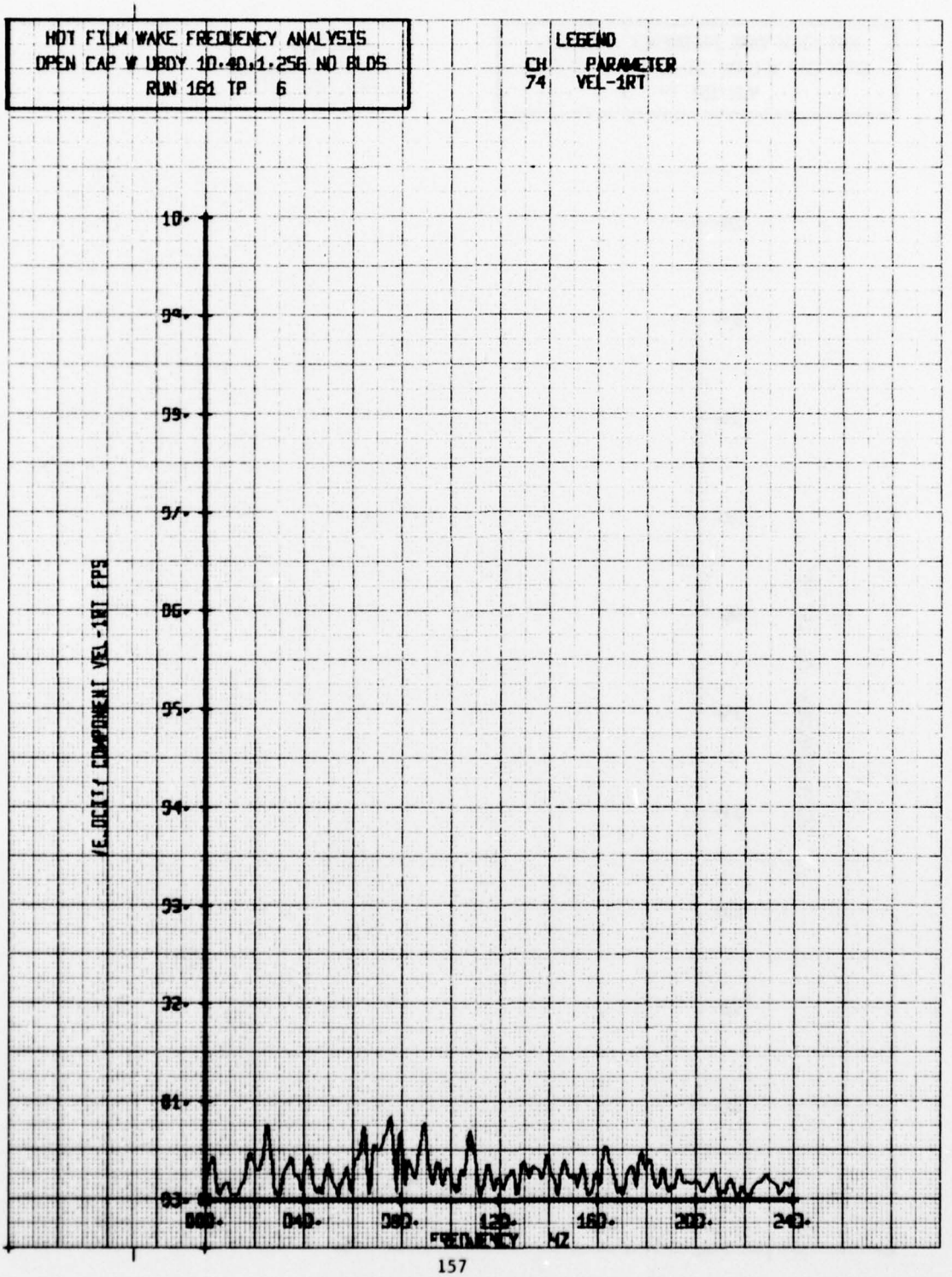
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.40.1.256 NO BLDS
RUN 161 TP 6
LEGEND
CH PARAMETER
74 VEL-1RT
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VELOCITY COMPONENT VEL-1RT FPS
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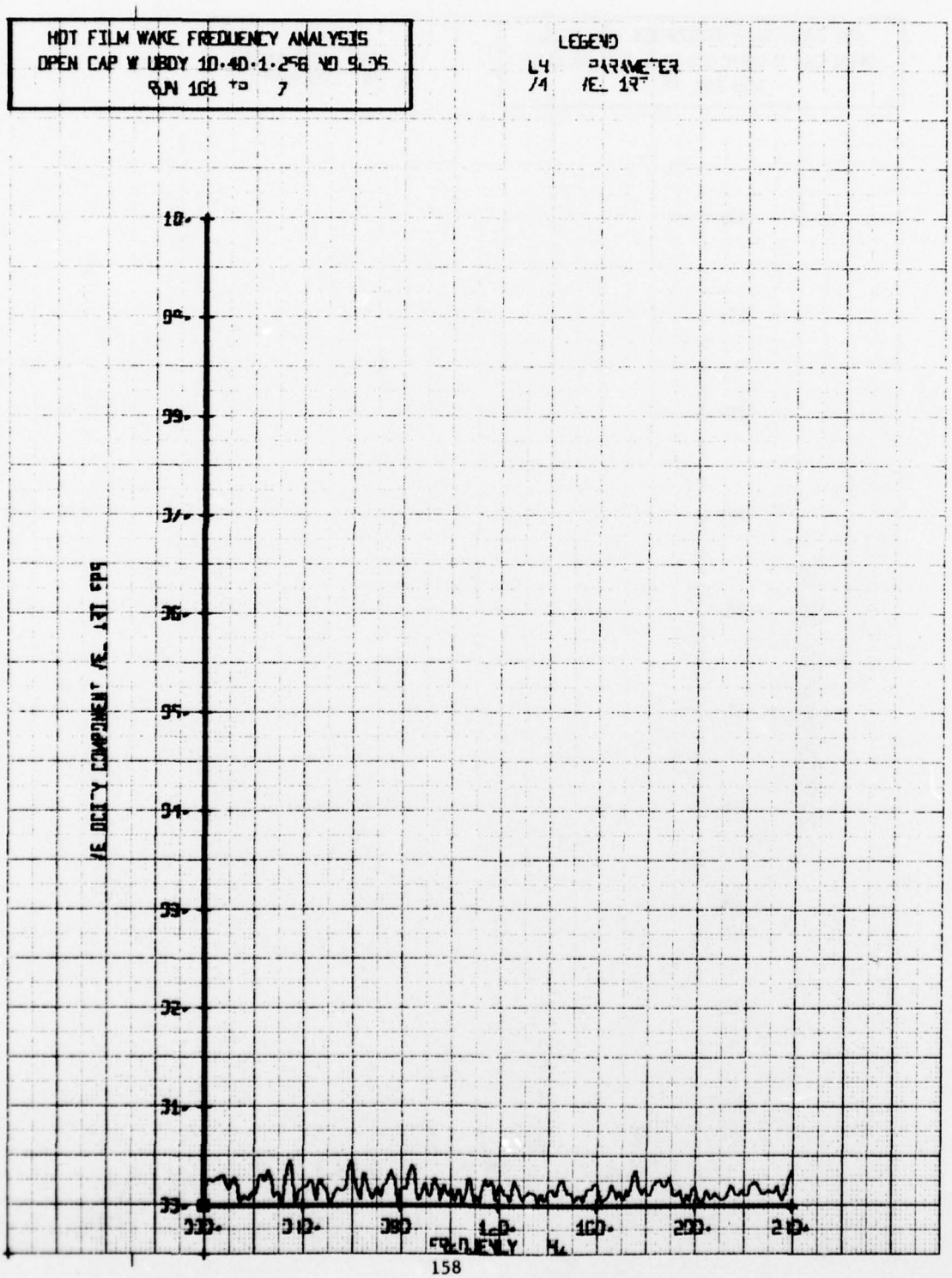
FREQUENCY HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10·4D·1·25G ND 9.05
RUN 101 TO 7
LEGEND
L4 PARAMETER
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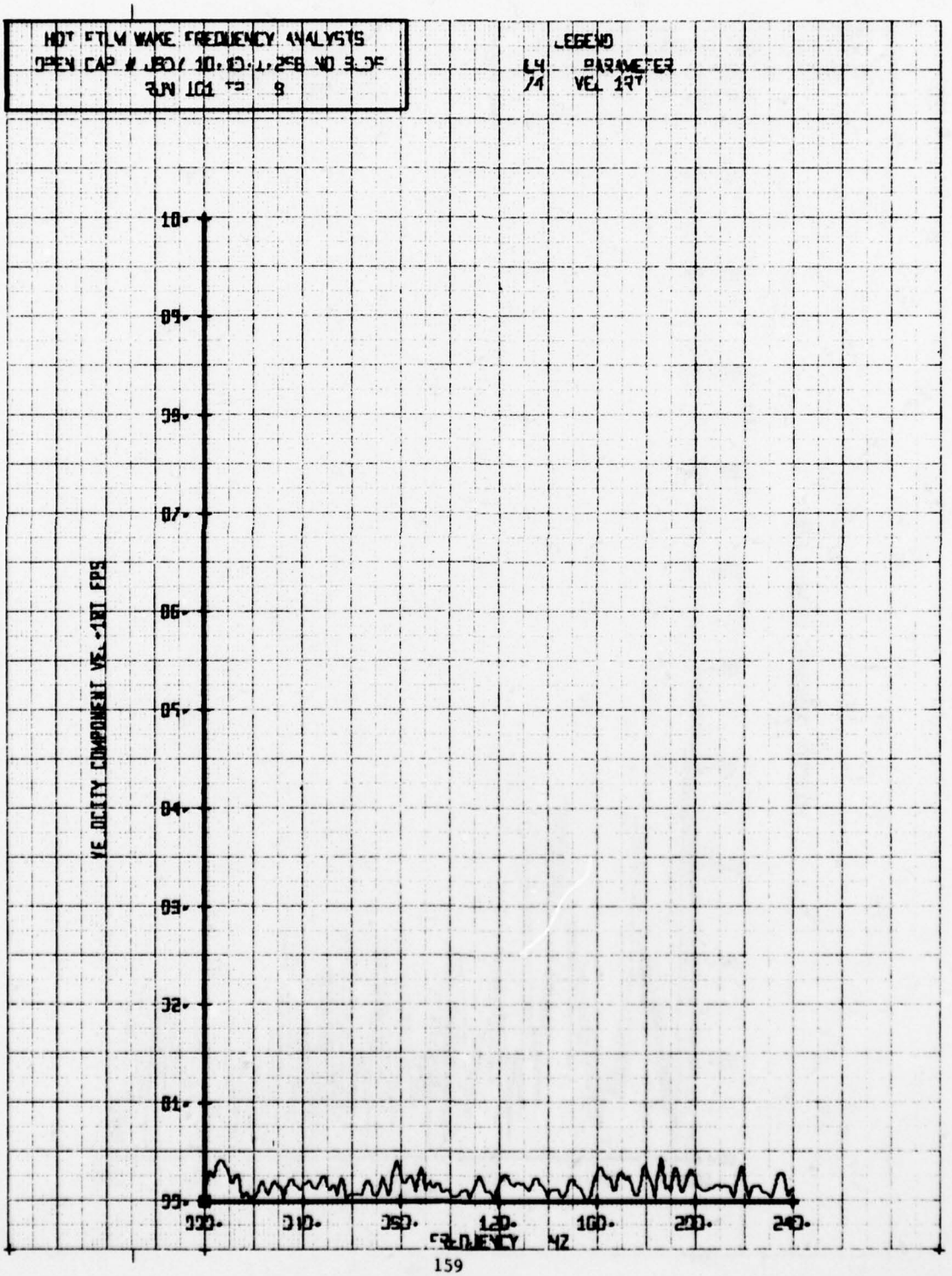
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP # 1801 10.10.1.256 NO 3.0F
RUN 101 TO 9
LEGEND
L4 PARAMETER
/4 VEL 197
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VELOCITY COMPONENT VEL-197 FPS
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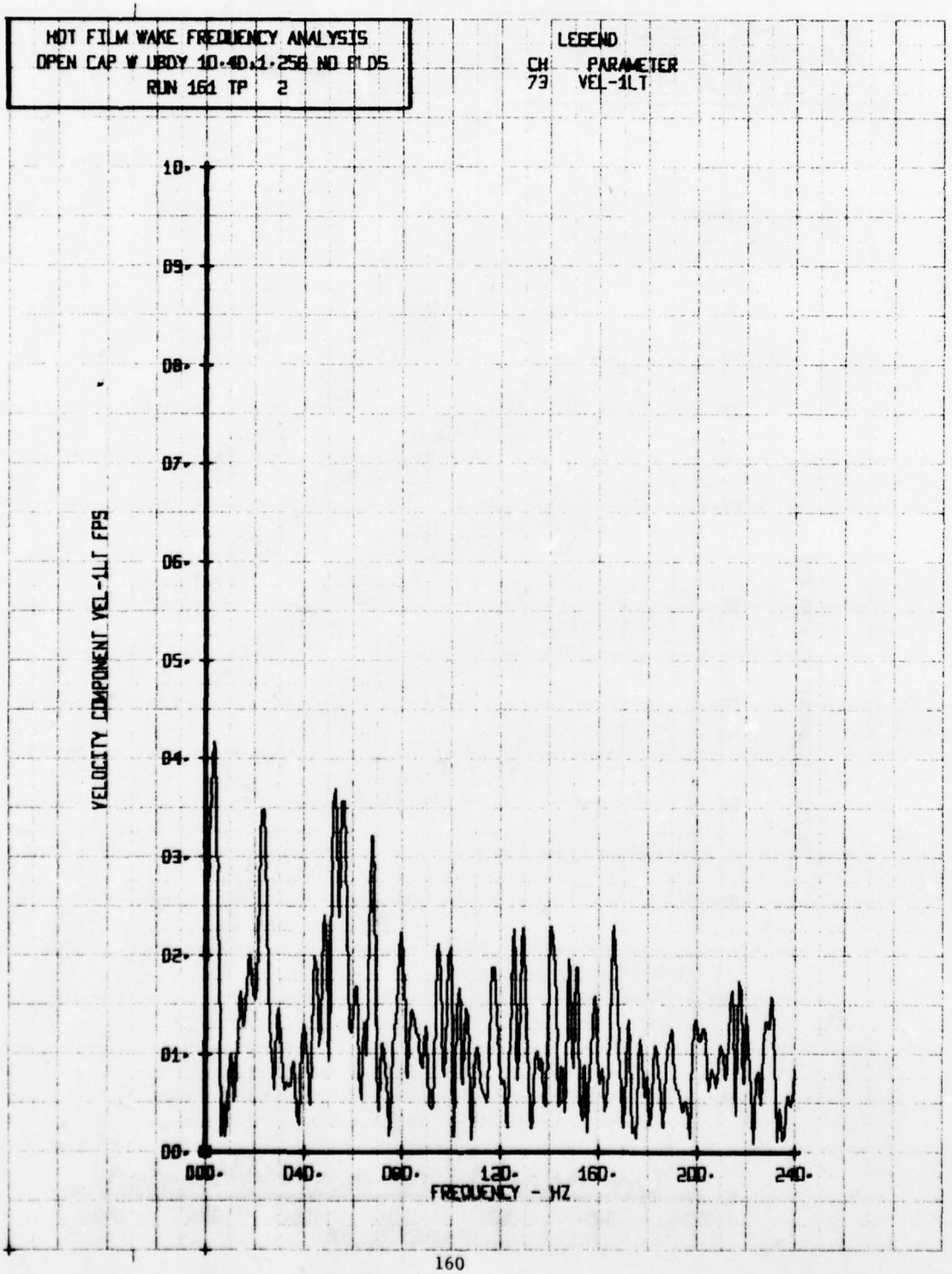
FREQUENCY HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-4D,1-256 NO BLDS
RUN 161 TP 2
LEGEND
CH PARAMETER
73 VEL-1LT
VELOCITY COMPONENT VEL-1LT FPS
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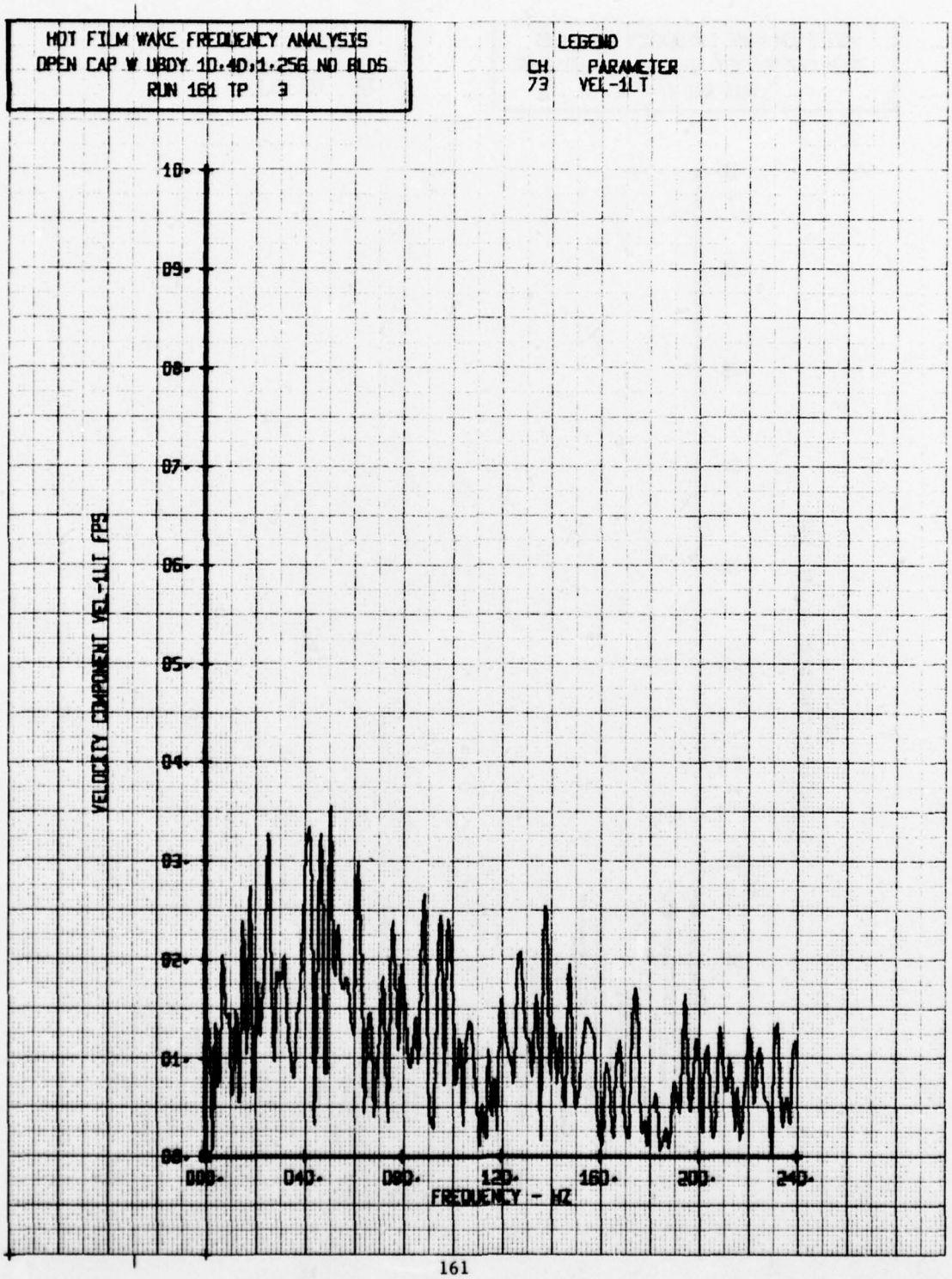
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 1D.4D,1.25G NO BLDS
RUN 161 TP 3
LEGEND
CH. PARAMETER
73 VEL-1LT
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VELOCITY COMPONENT VEL-1LT FPS
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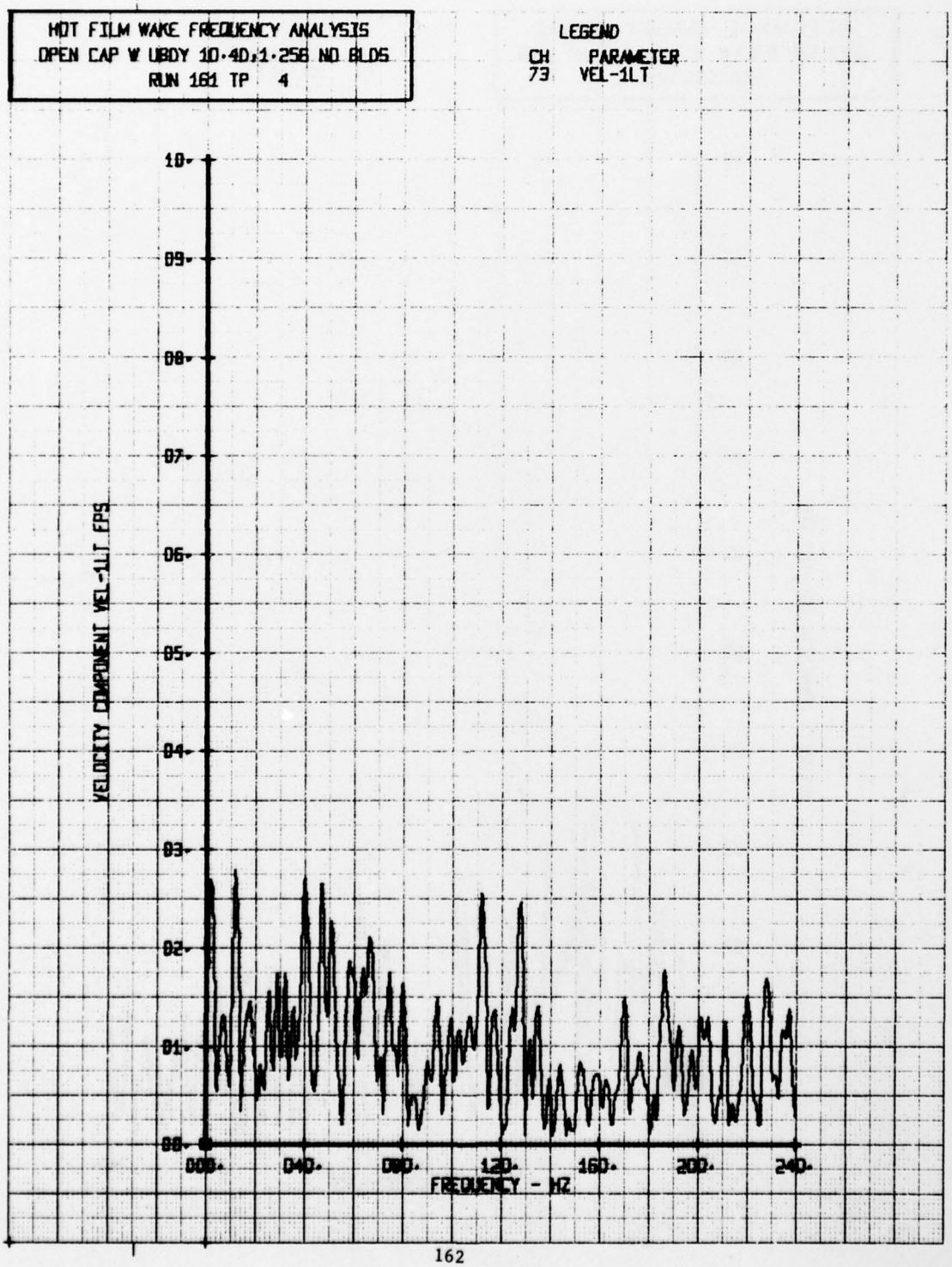
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10·4D,1·25δ NO BLDS
RUN 161 TP 4
LEGEND
CH PARAMETER
73 VEL-1LT
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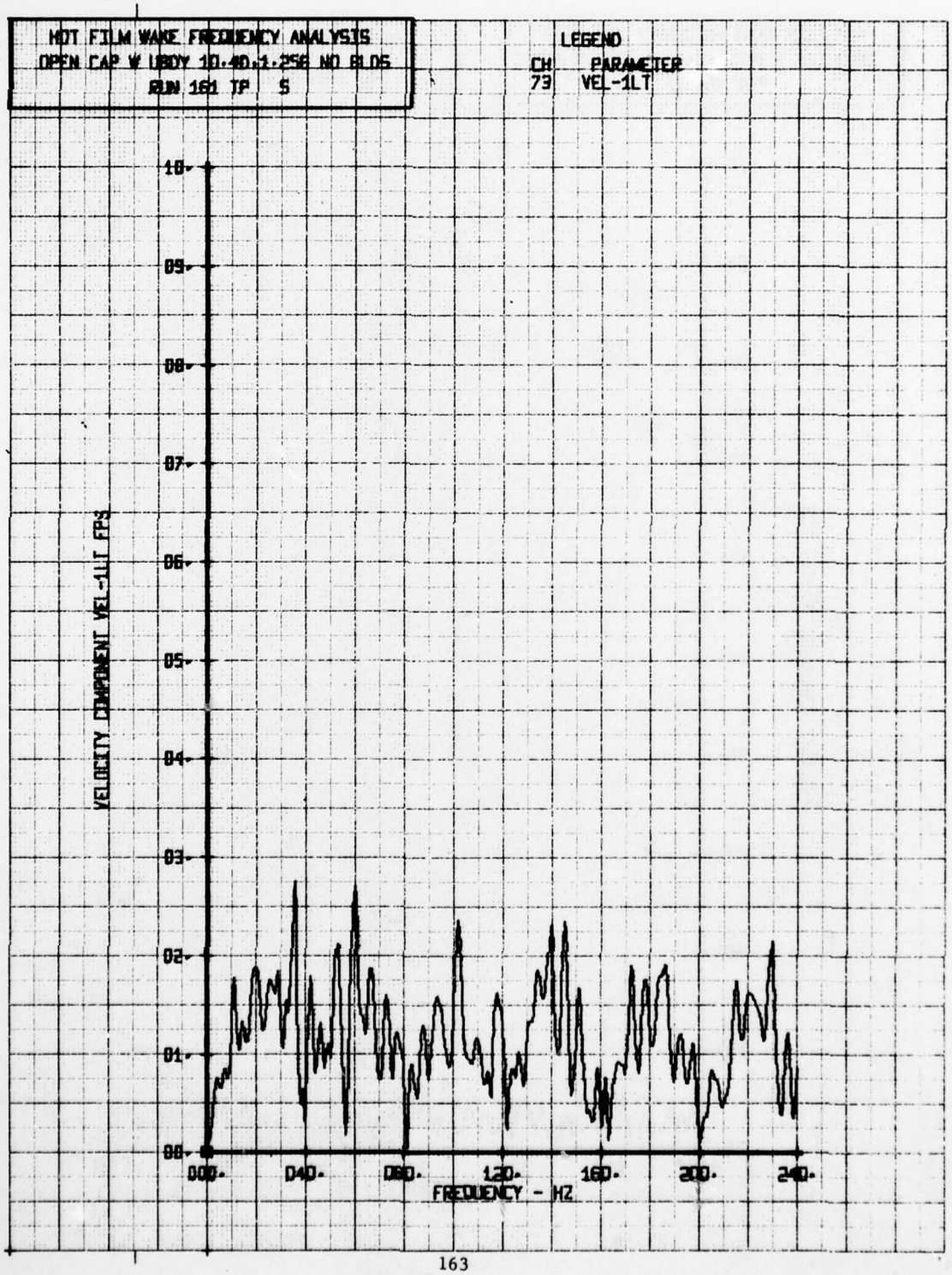
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBODY 10.40.1.256 NO BLDS
RUN 161 TP 5
LEGEND
CH PARAMETER
73 VEL-1LT
VELOCITY COMPONENT VEL-1LT FPS
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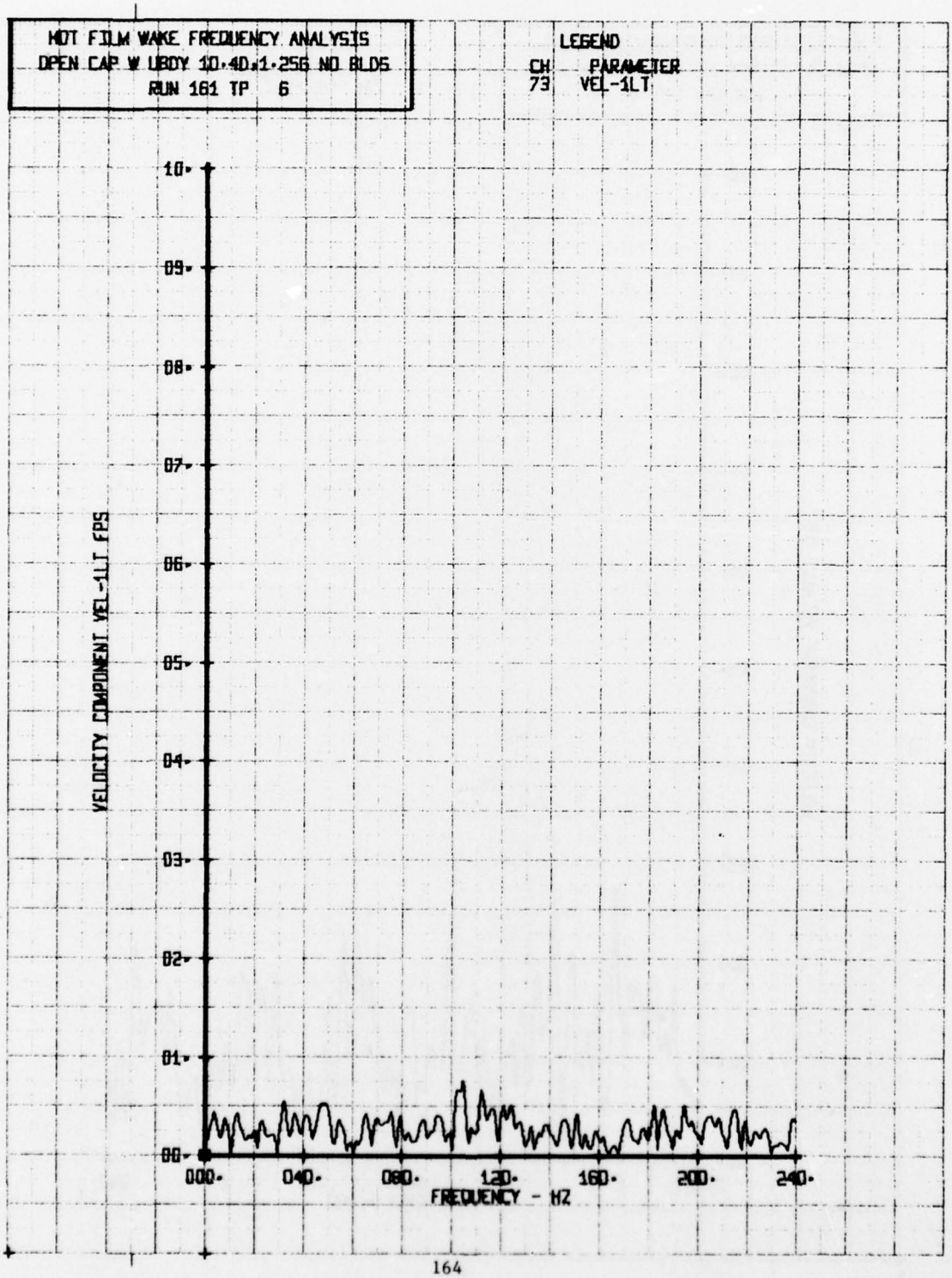
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.40.1.256 NO BLDS
RUN 161 TP 6
LEGEND
CH PARAMETER
73 VEL-1LT
VELOCITY COMPONENT VEL-1LT FPS
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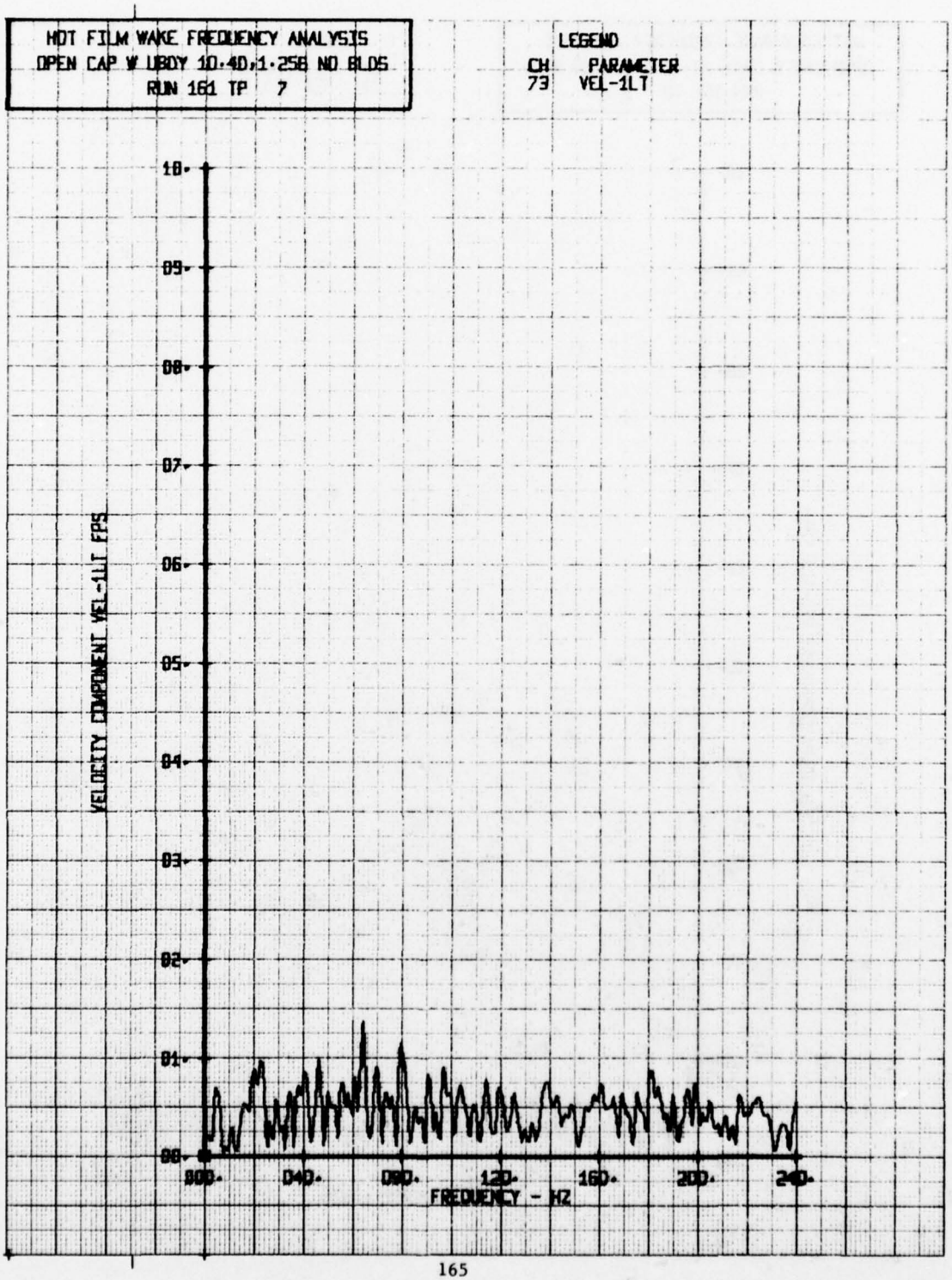
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10.40,1.25B NO BLDS
RUN 161 TP 7
LEGEND
CH PARAMETER
73 VEL-1LT
VELOCITY COMPONENT VEL-1LT FPS
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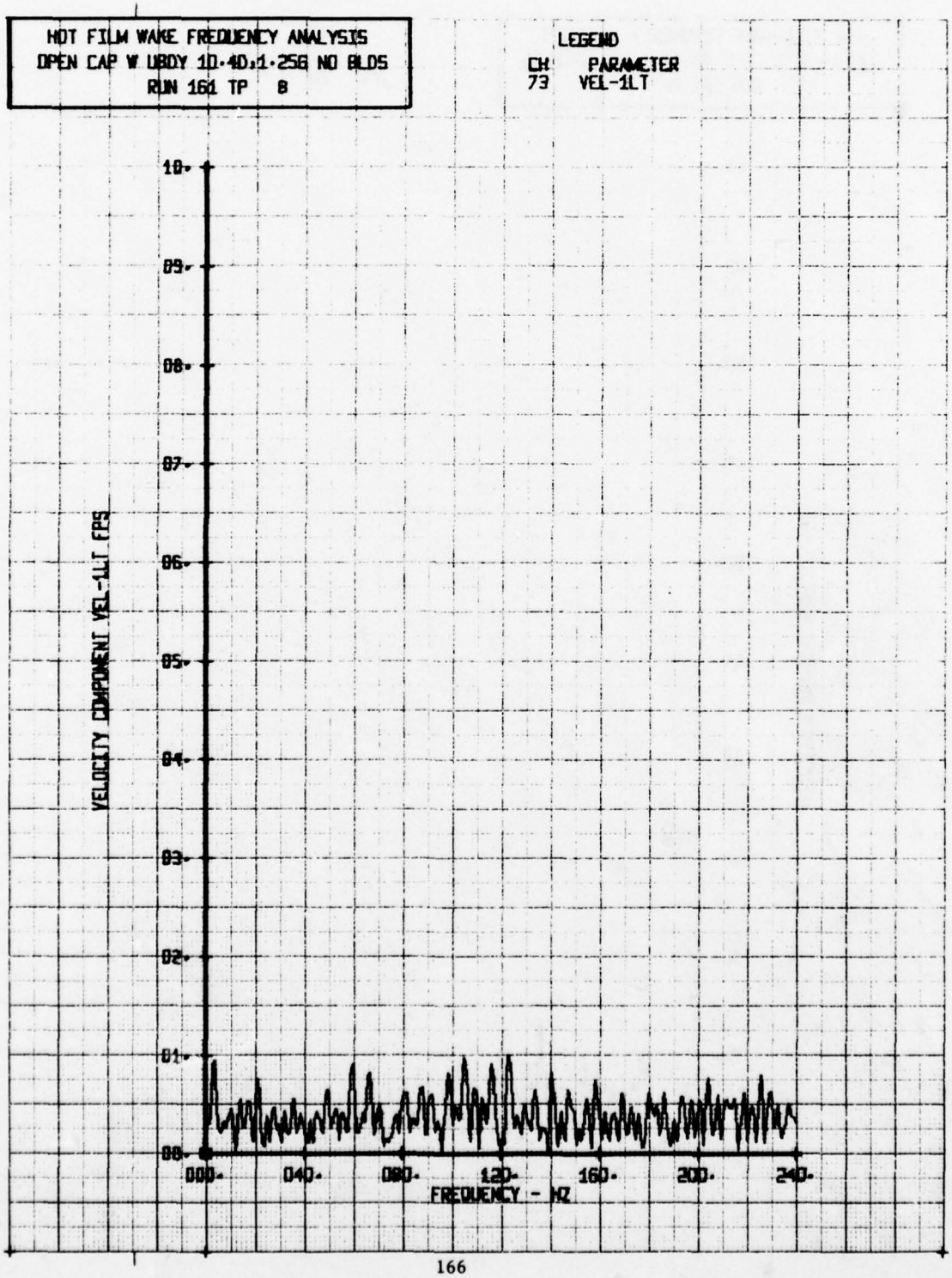
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 1D-4D-1-256 NO BLDS
RUN 161 TP 8
LEGEND
CH PARAMETER
73 VEL-1LT
VELOCITY COMPONENT VEL-1LT FPS
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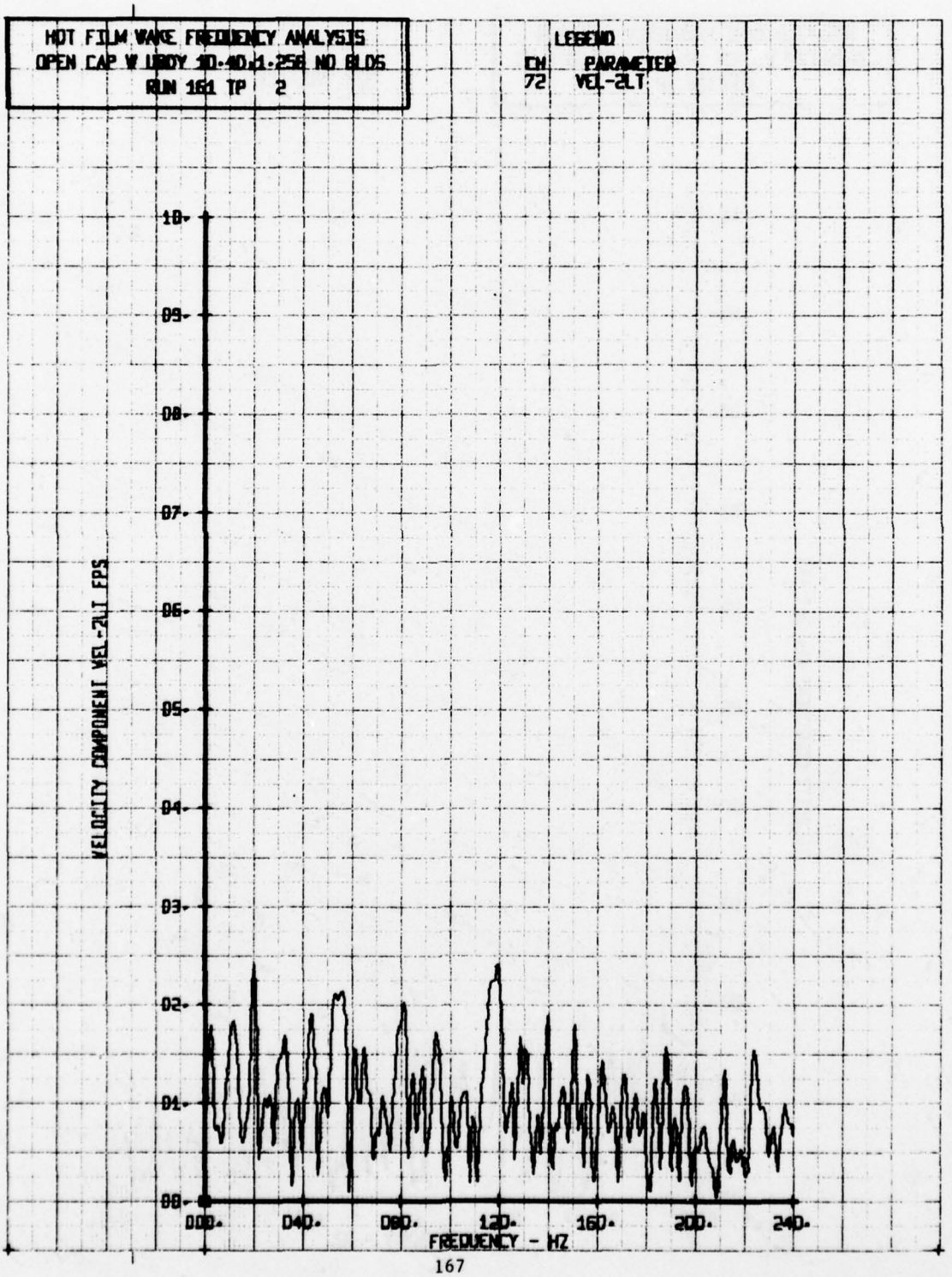
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W BODY 10-40,1-256 NO BLDS
RUN 161 TP 2
LEGEND
CH PARAMETER
72 VEL-2LT
VELOCITY COMPONENT VEL-2LT FPS
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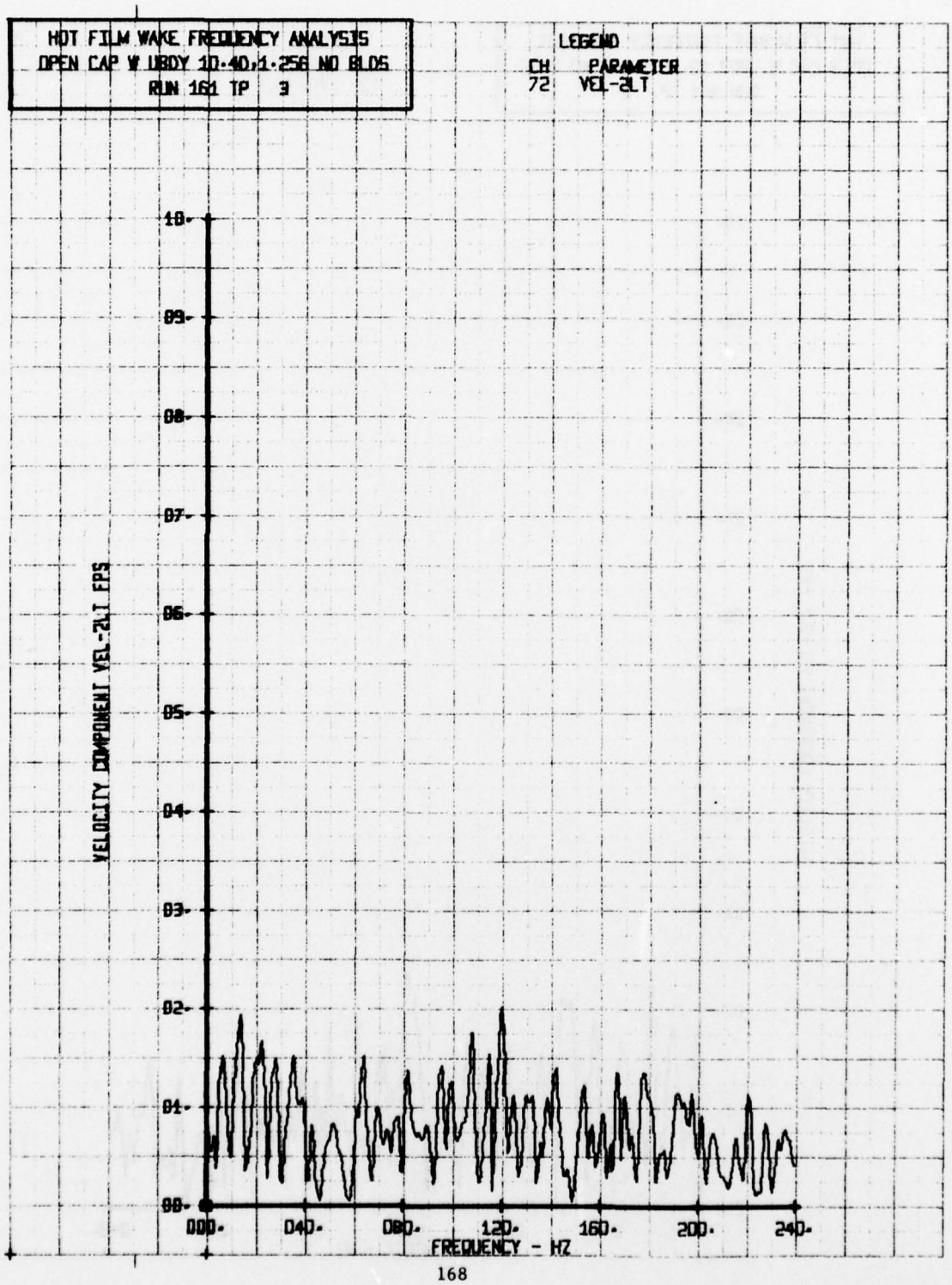
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.40,1.256 NO BLDS
RUN 161 TP 3
LEGEND
CH PARAMETER
72 VEL-2LT
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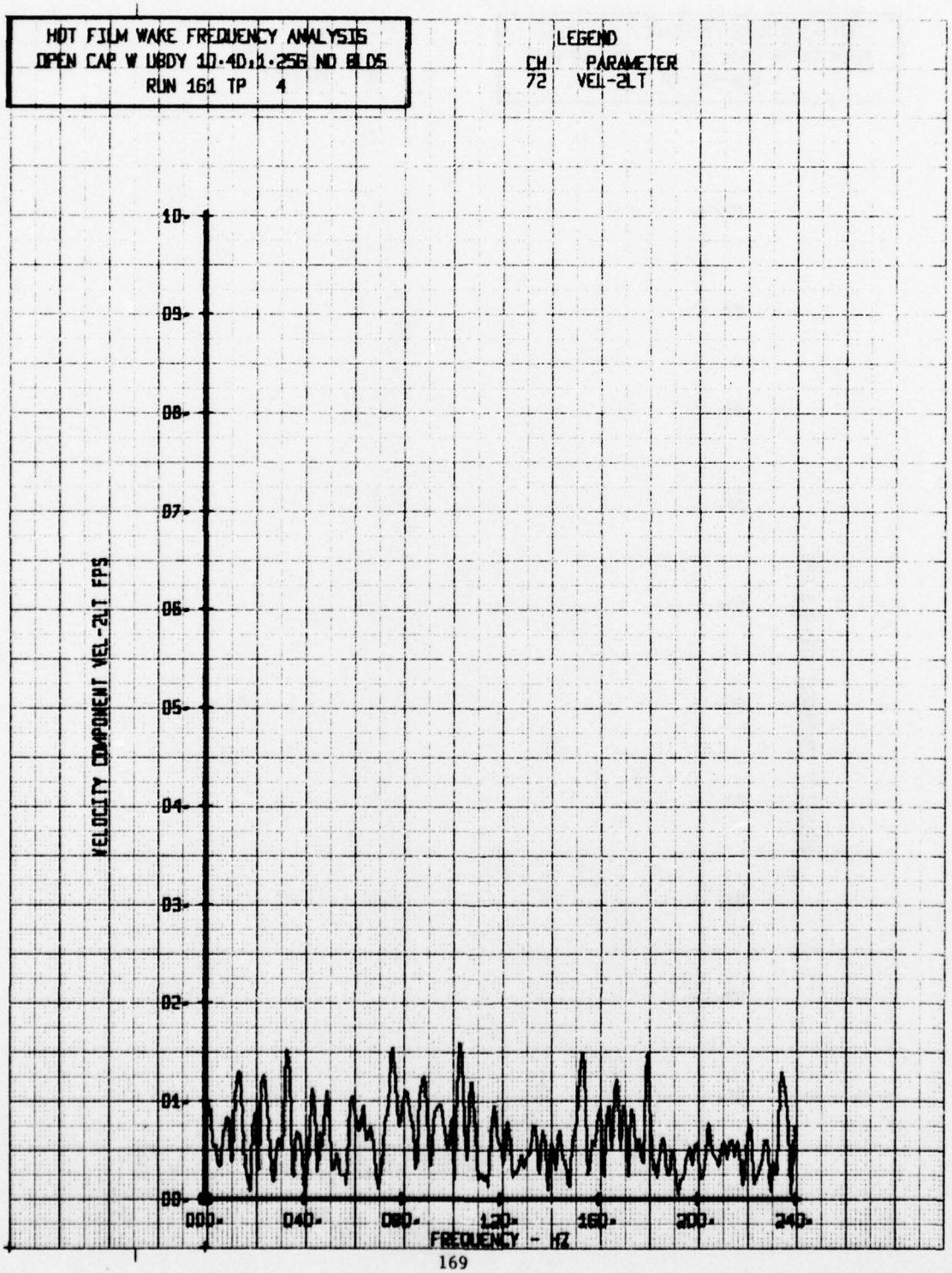
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-4D,1-25G NO BLDS
RUN 161 TP 4
LEGEND
CH PARAMETER
72 VEL-2LT
VELOCITY COMPONENT VEL-2LT FPS
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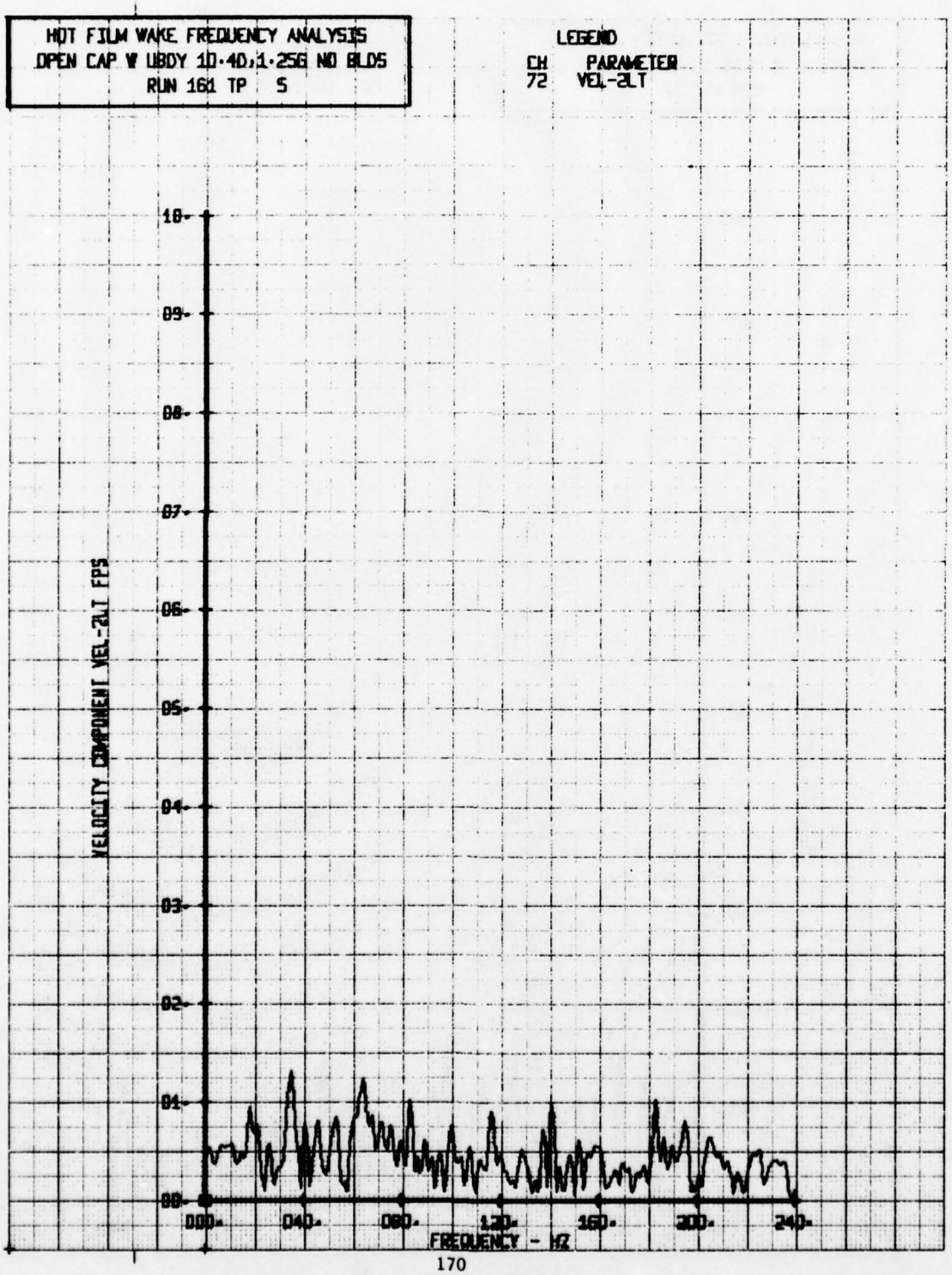
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLDS
RUN 161 TP 5
LEGEND
CH PARAMETER
72 VEL-2LT
VELOCITY COMPONENT VEL-2LT FPS
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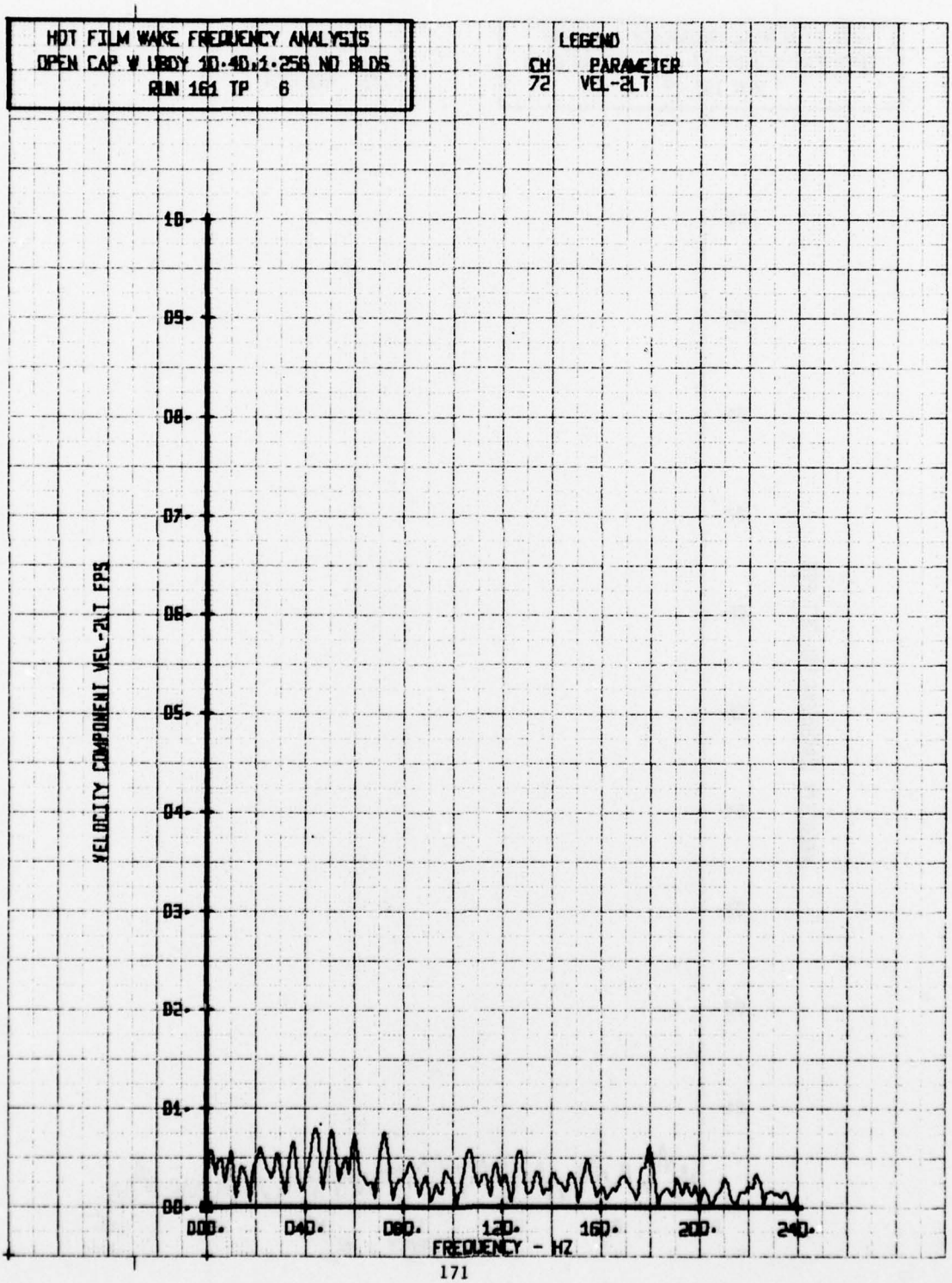
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBODY 10-40-1-256 ND BLDS
RUN 161 TP 6
LEGEND
CH PARAMETER
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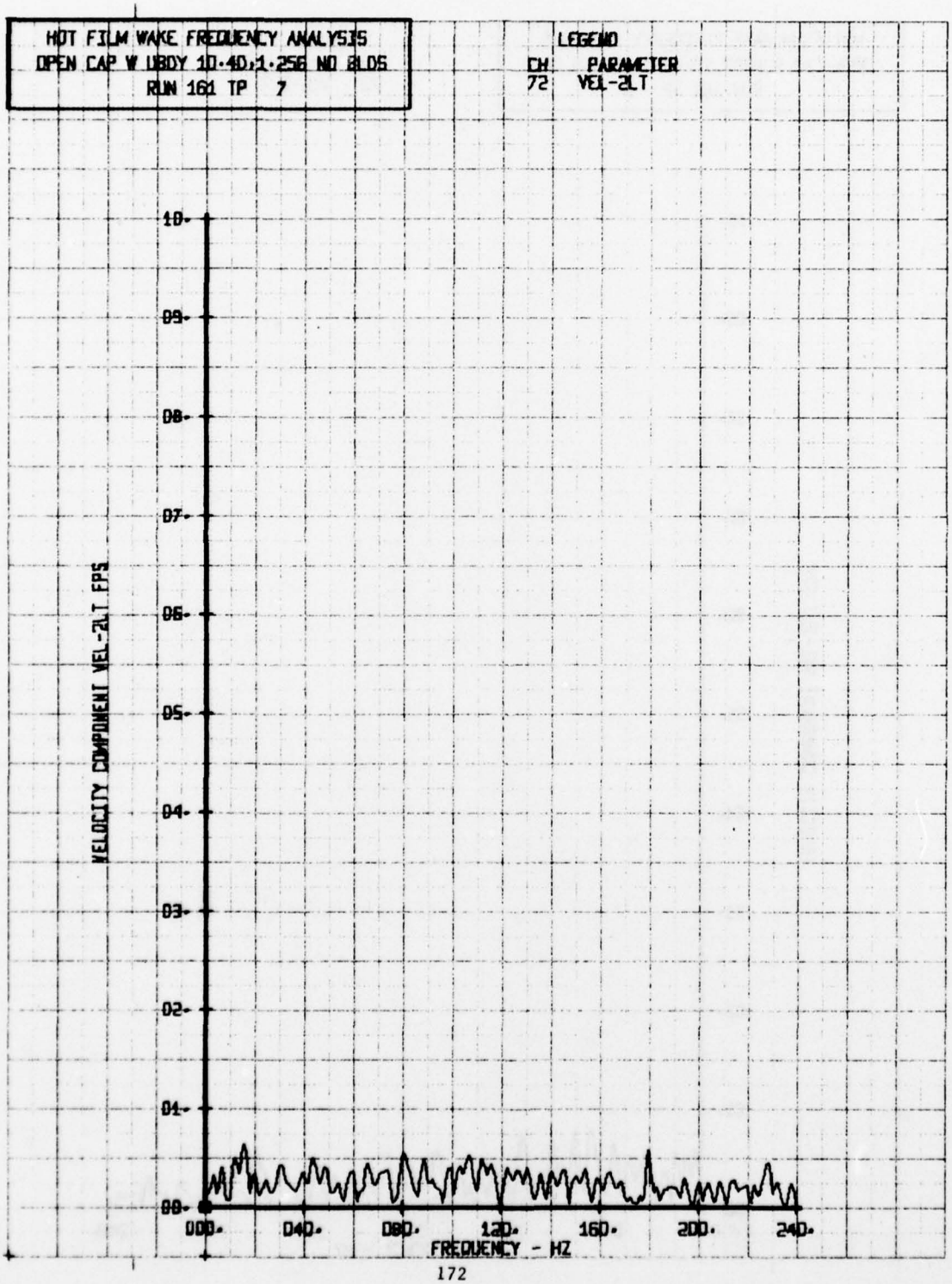
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 1D-4D,1.25G NO BLDS
RUN 161 TP 7
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-2LT FPS
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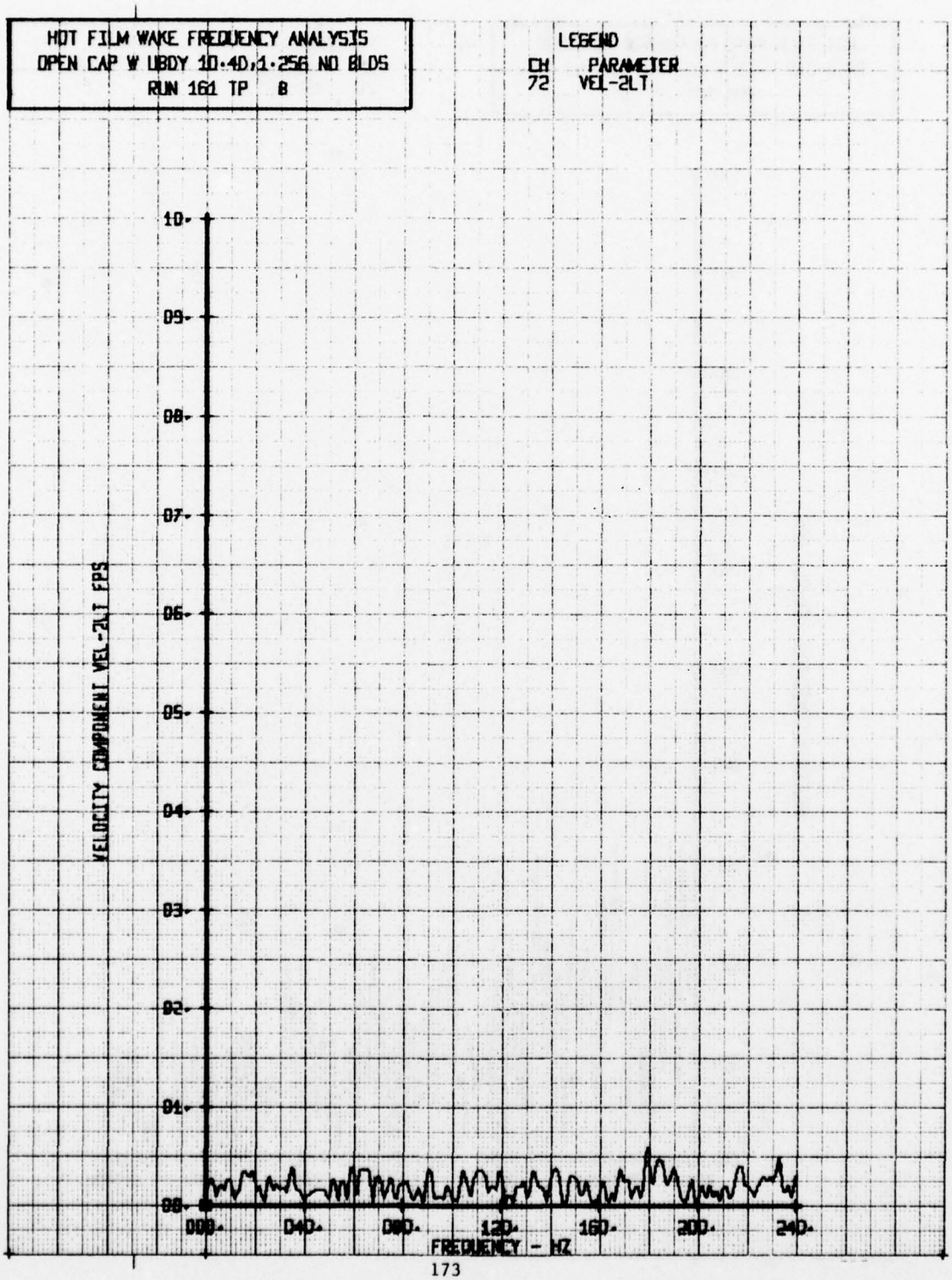
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.4D,1.25G NO BLDS
RUN 161 TP 8
LEGEND
CH PARAMETER
72 VEL-2LT
VELOCITY COMPONENT VEL-2LT FPS
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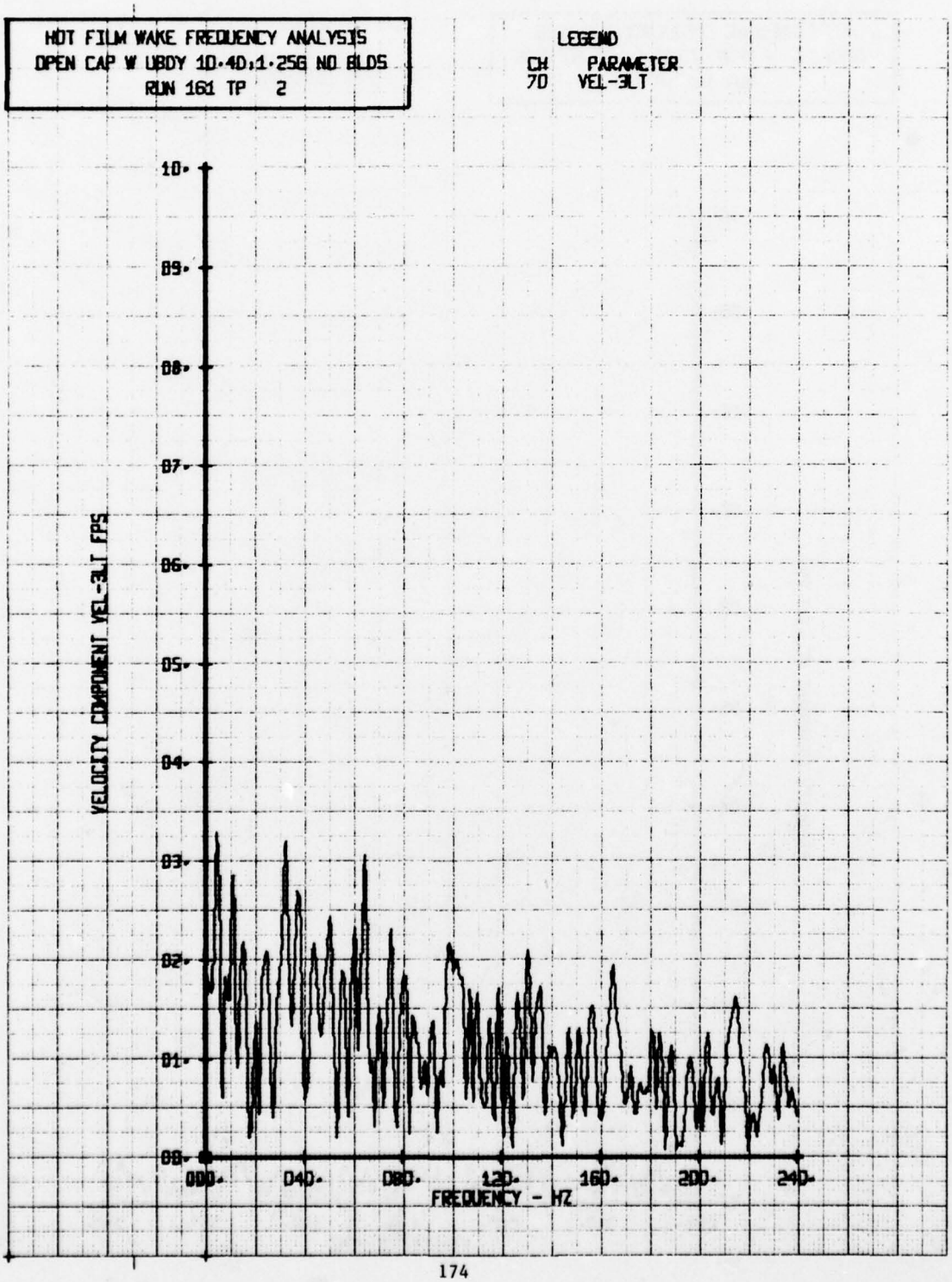
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 1D·4D,1·25G NO BLDS
RUN 161 TP 2
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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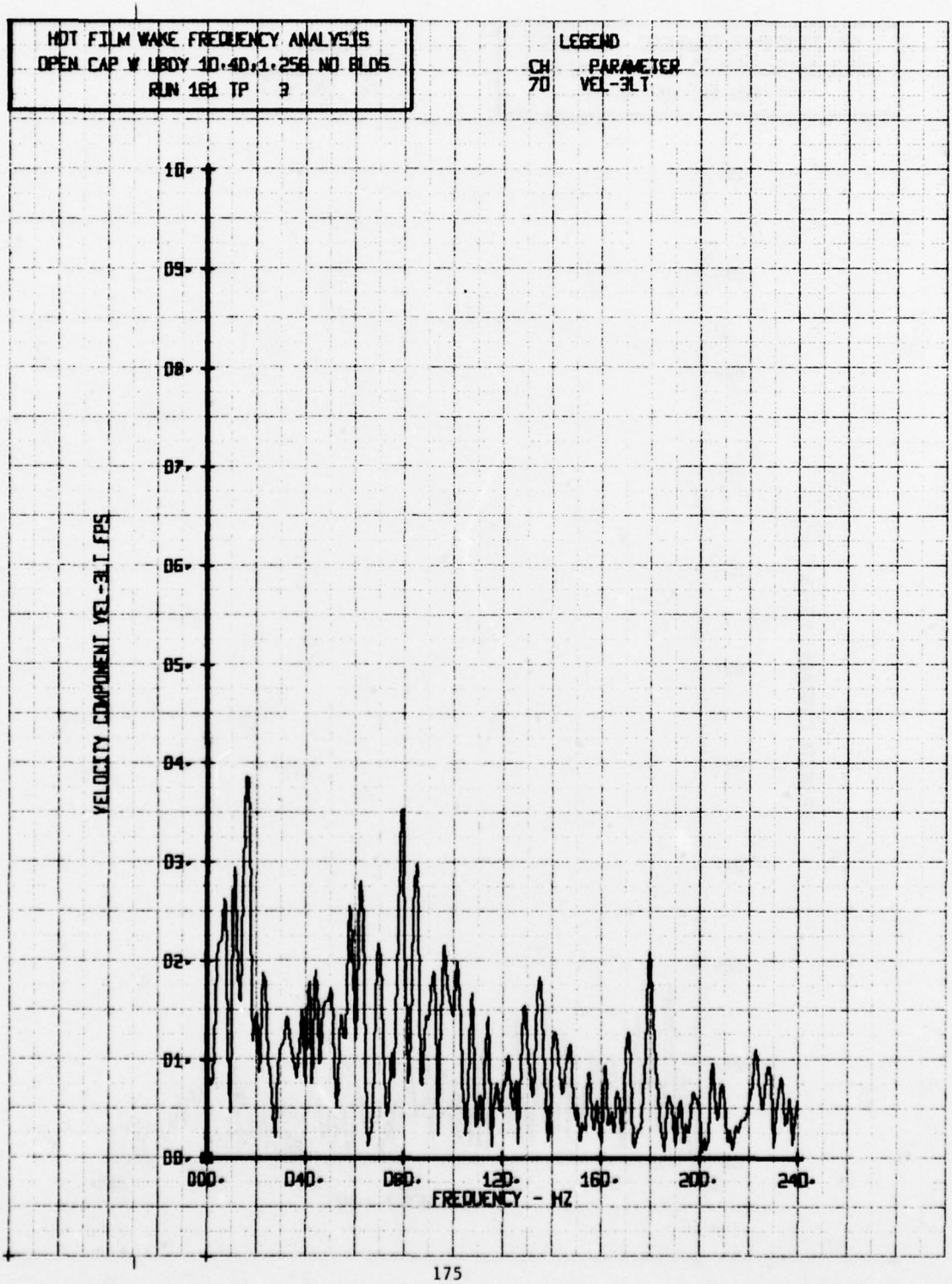
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 1D,4D,1.25G NO BLDS
RUN 161 TP 3
LEGEND
CH PARAMETER
70 VEL-3LT
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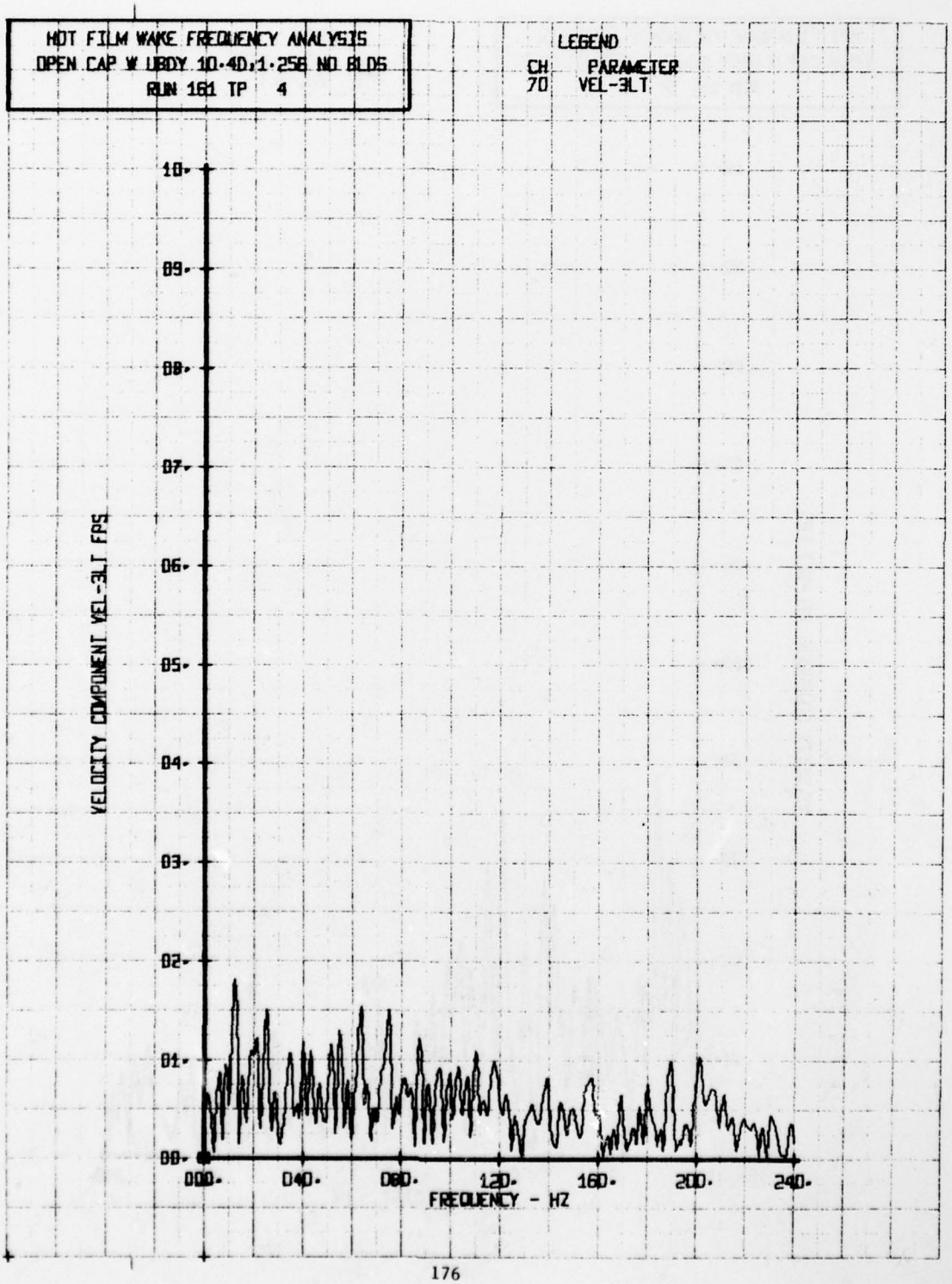
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.4D,1.25B NO BLDS
RUN 161 TP 4
LEGEND
CH PARAMETER
70 VEL-3LT
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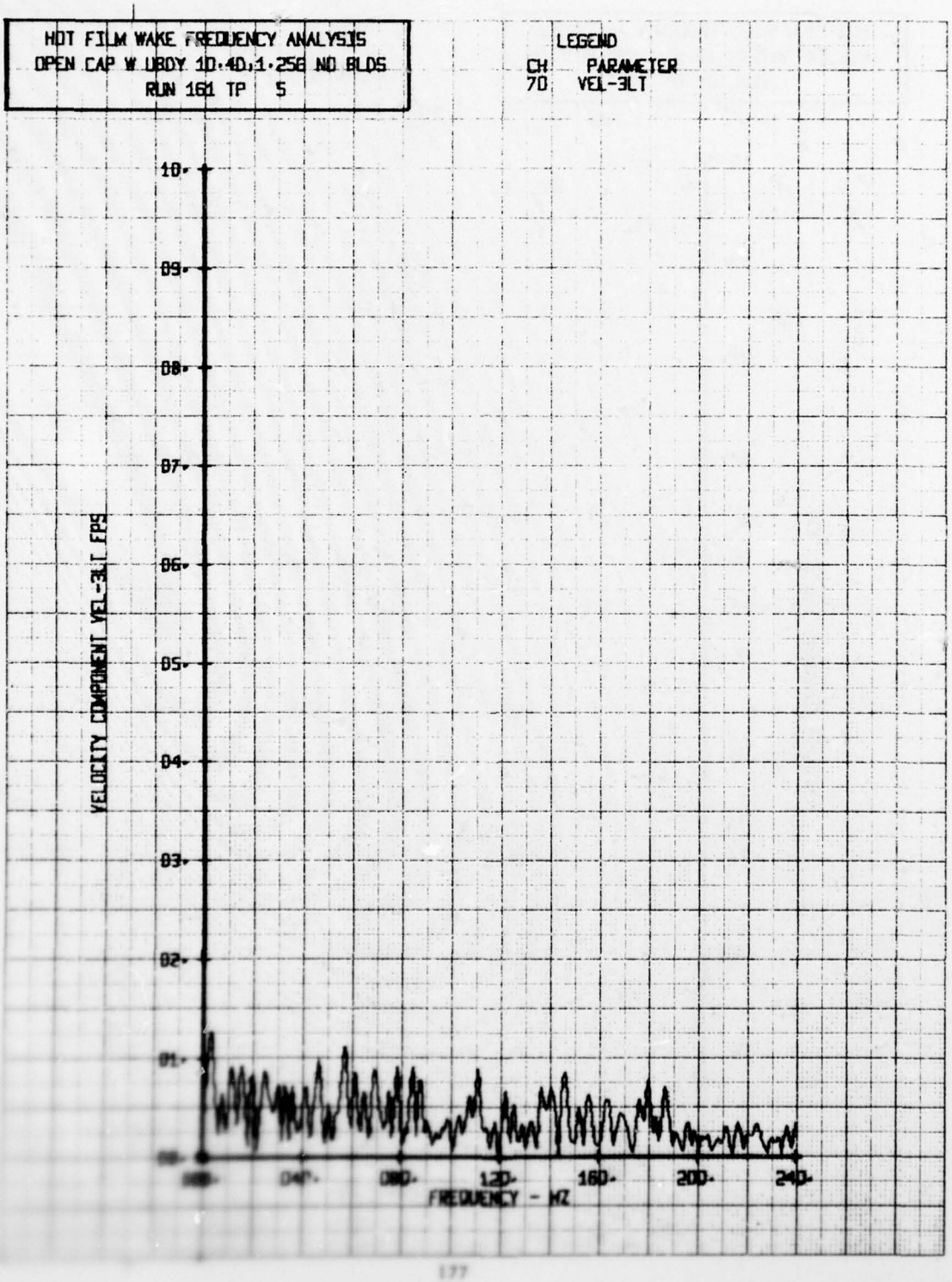
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 1D.4D,1.25G NO BLDS
RUN 161 TP 5
LEGEND
CH PARAMETER
70 VEL-3LT
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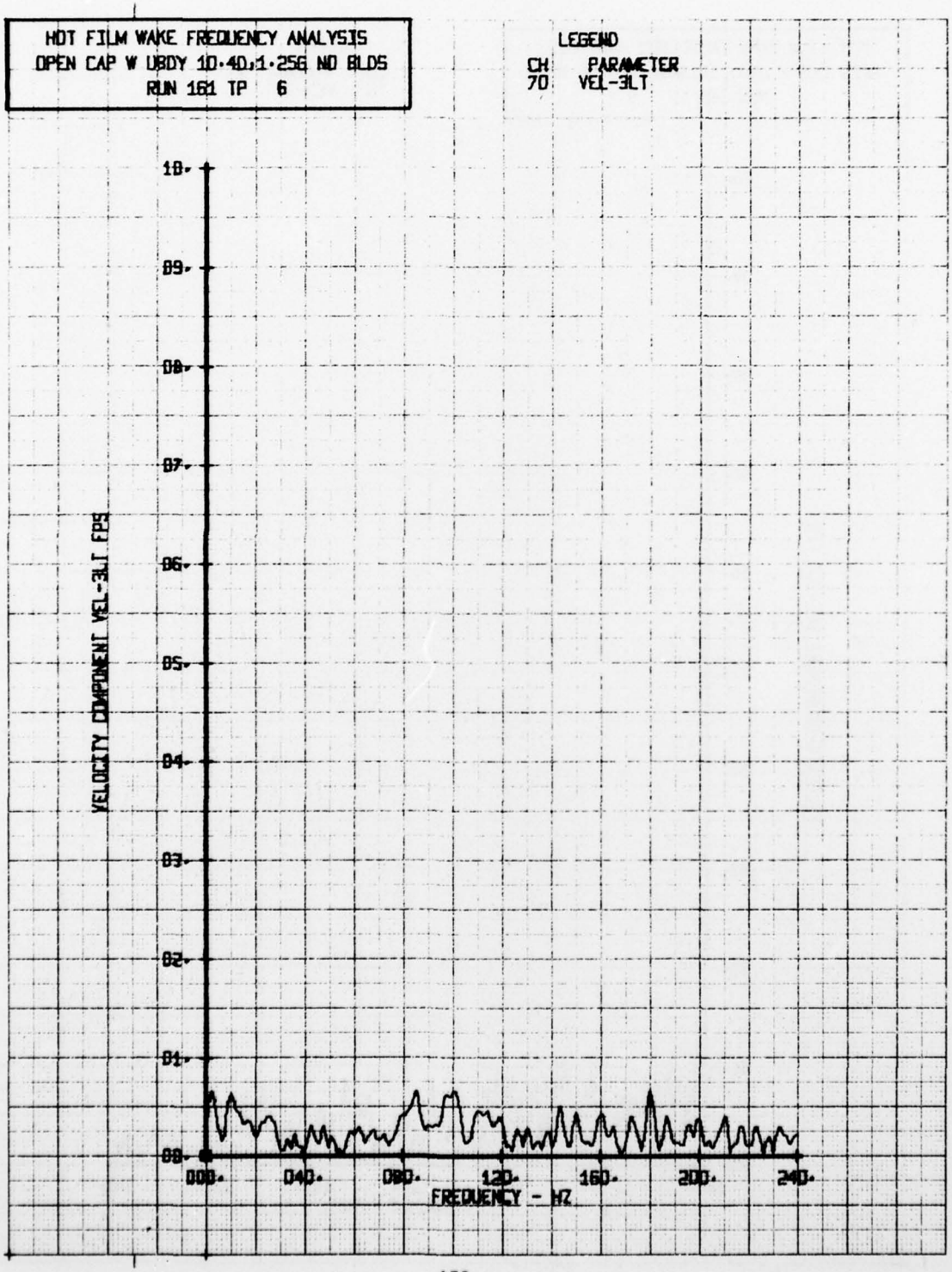
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 1D·4D,1·25G NO BLDS
RUN 161 TP 6
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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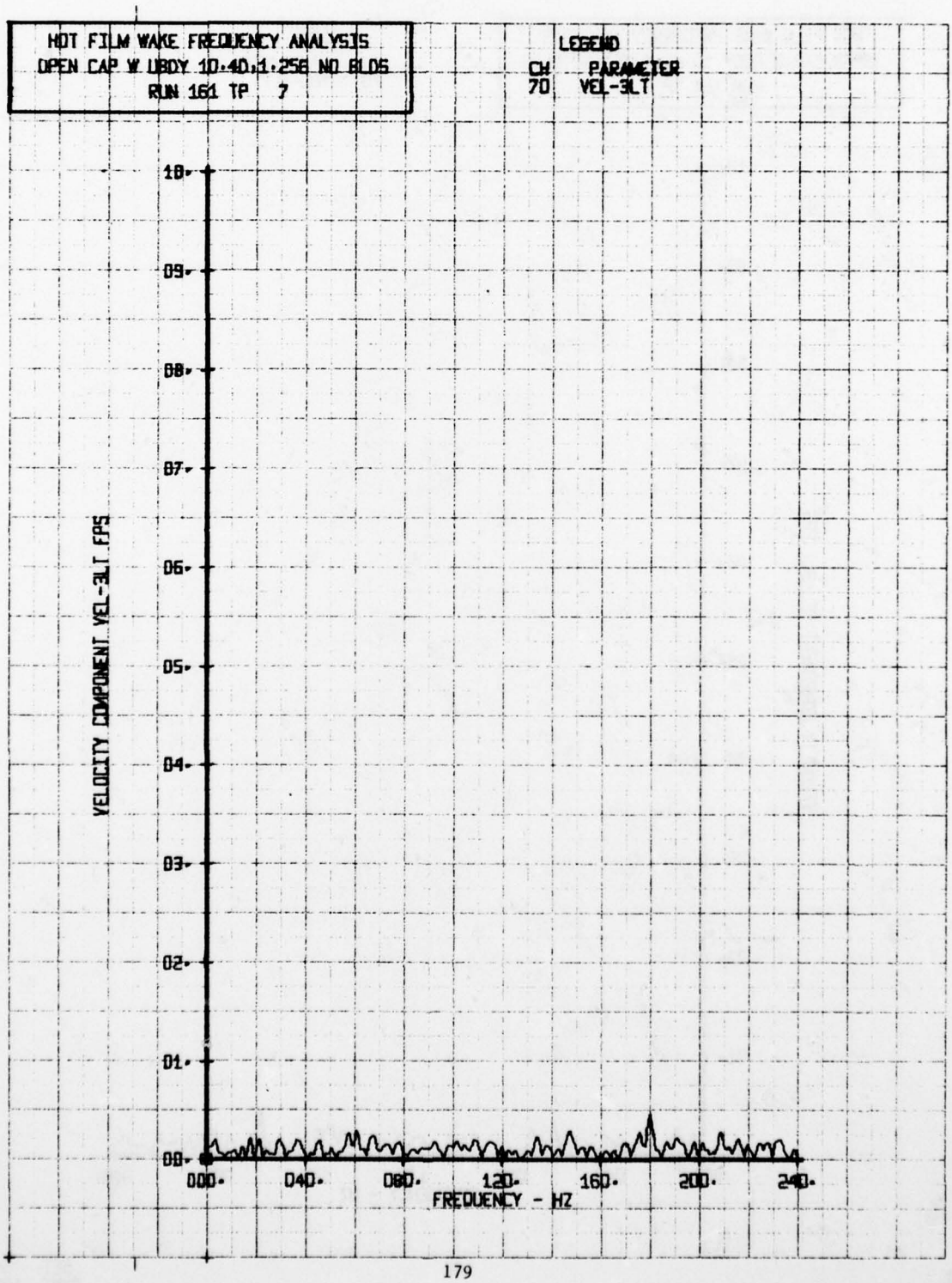
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10.40.1.256 NO BLDS
RUN 161 TP 7
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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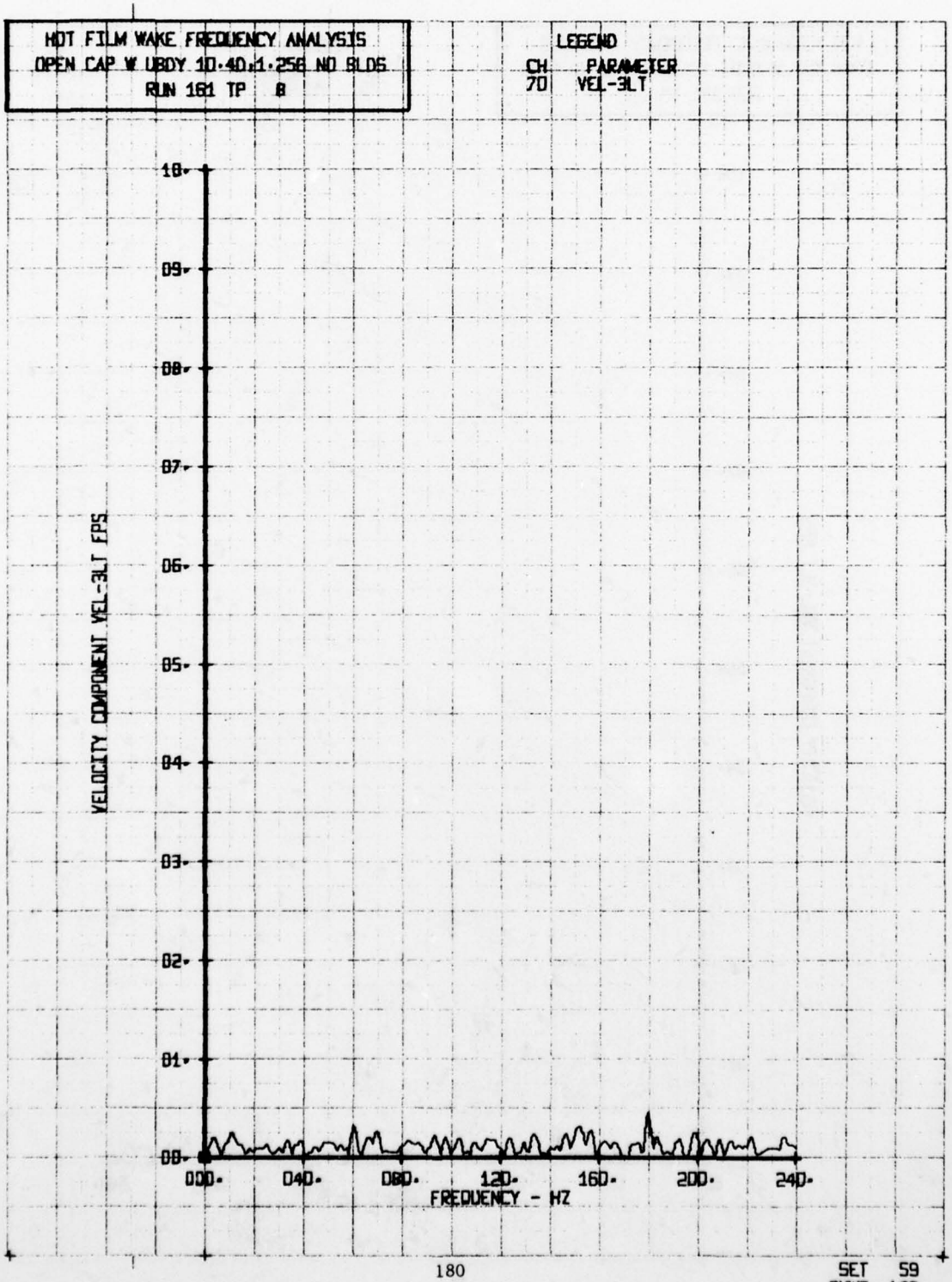
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 1D·4D·1·256 NO BLDG
RUN 181 TP 8
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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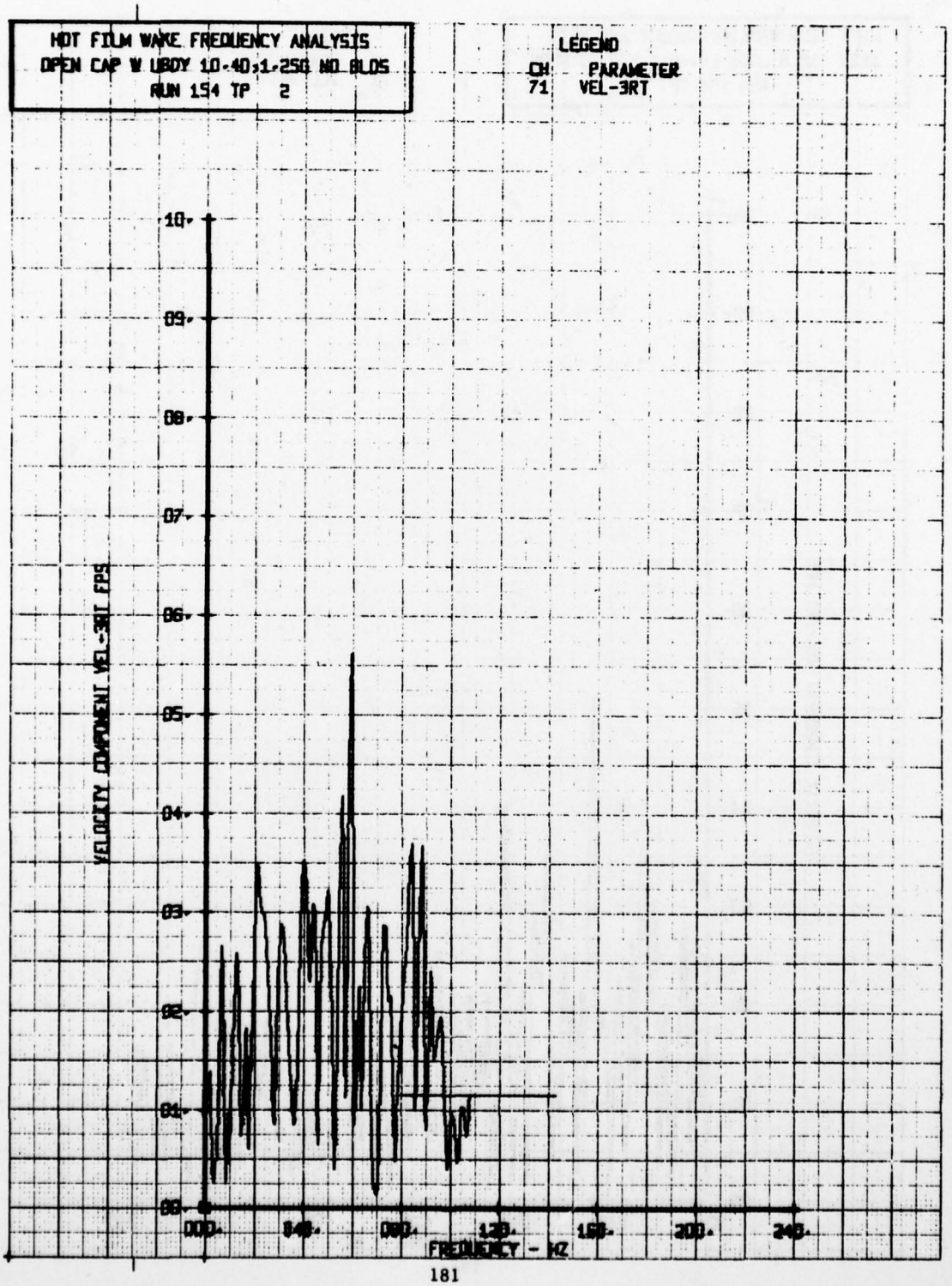
SET 59
BVWT 169


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10-40,1-250 NO BLDS
RUN 154 TP 2
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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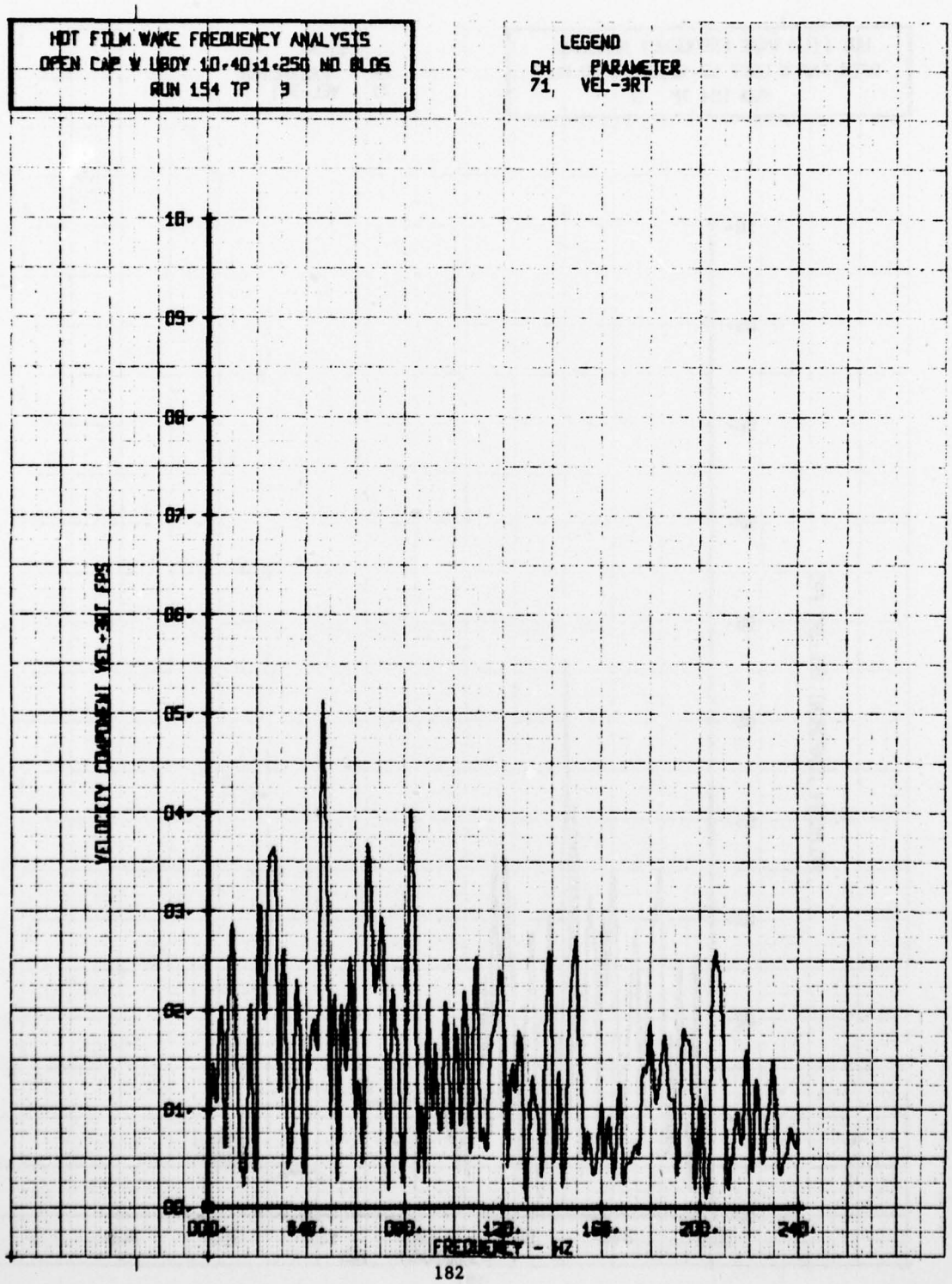
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10.40:1.250 NO BLOS
RUN 154 TP 9
LEGEND
CH PARAMETER
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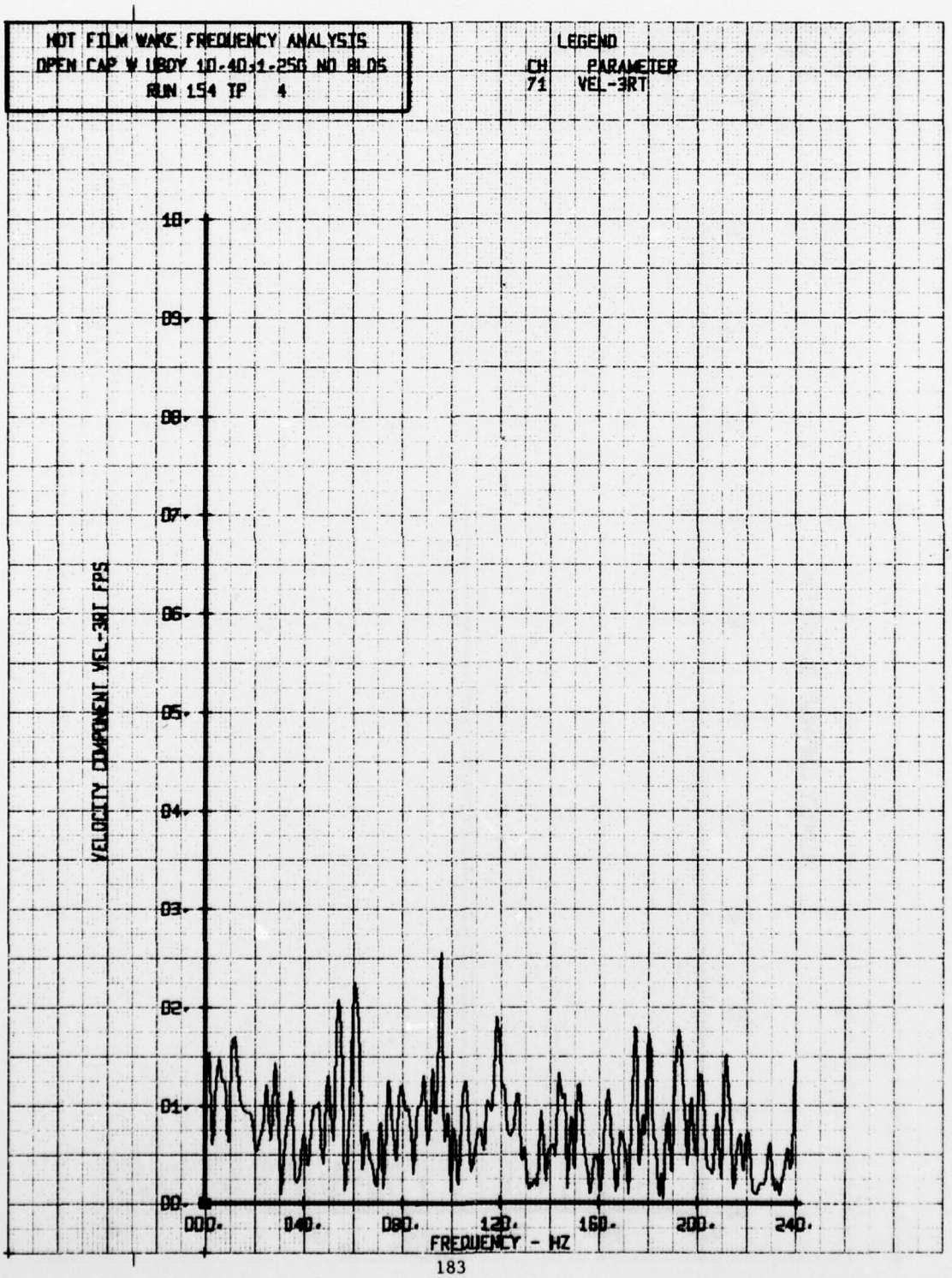
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBOY 10-40,1-25G NO BLDS
RUN 154 TP 4
LEGEND
CH PARAMETER
71 VEL-3RT
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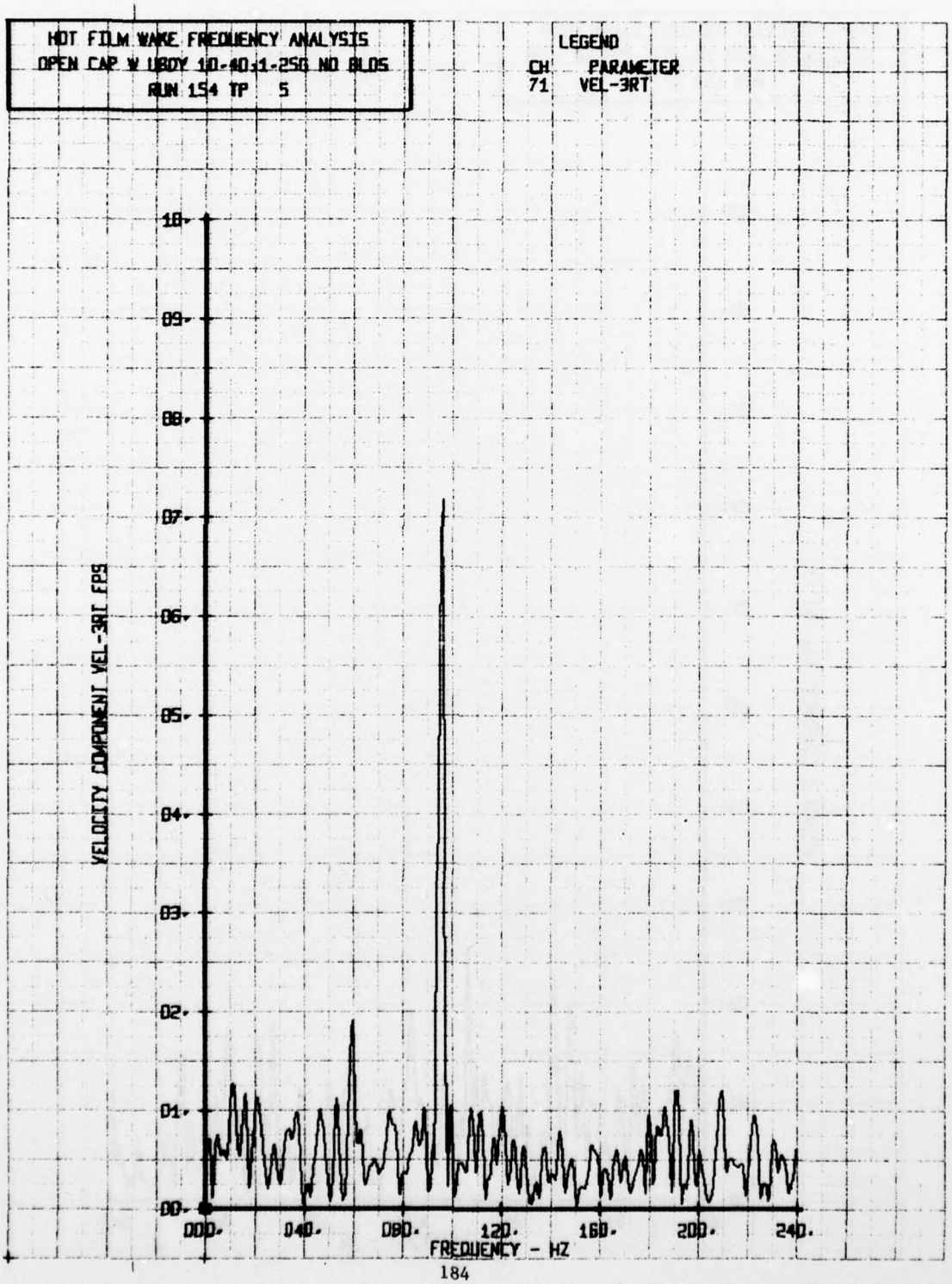
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40;1-25G NO BLDS
RUN 154 TP 5
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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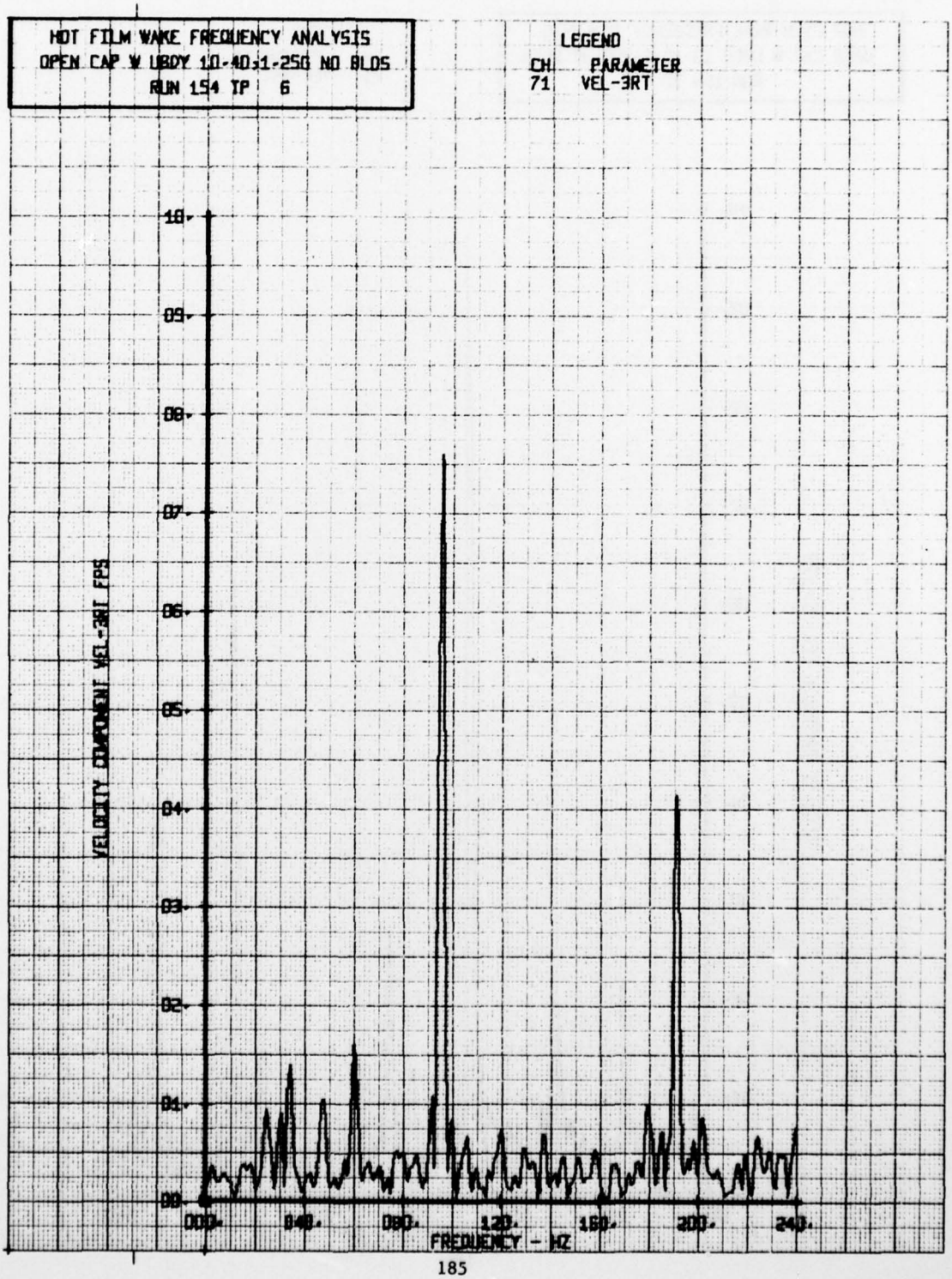
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40;1-25G NO BLDS
RUN 154 TP 6
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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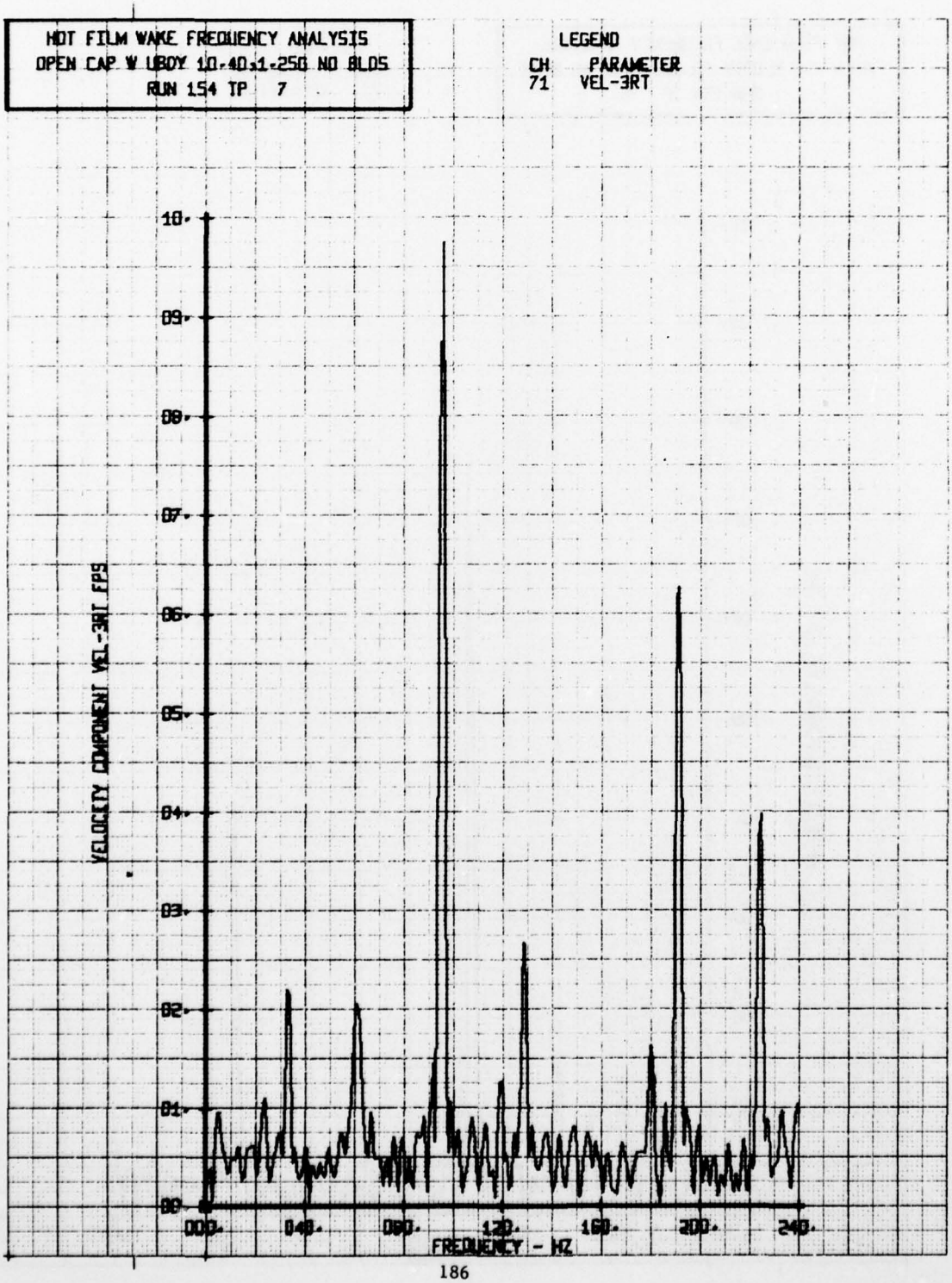
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OPEN CAP W UBOY 10-40-1-250 NO BLDS
RUN 154 TP 7
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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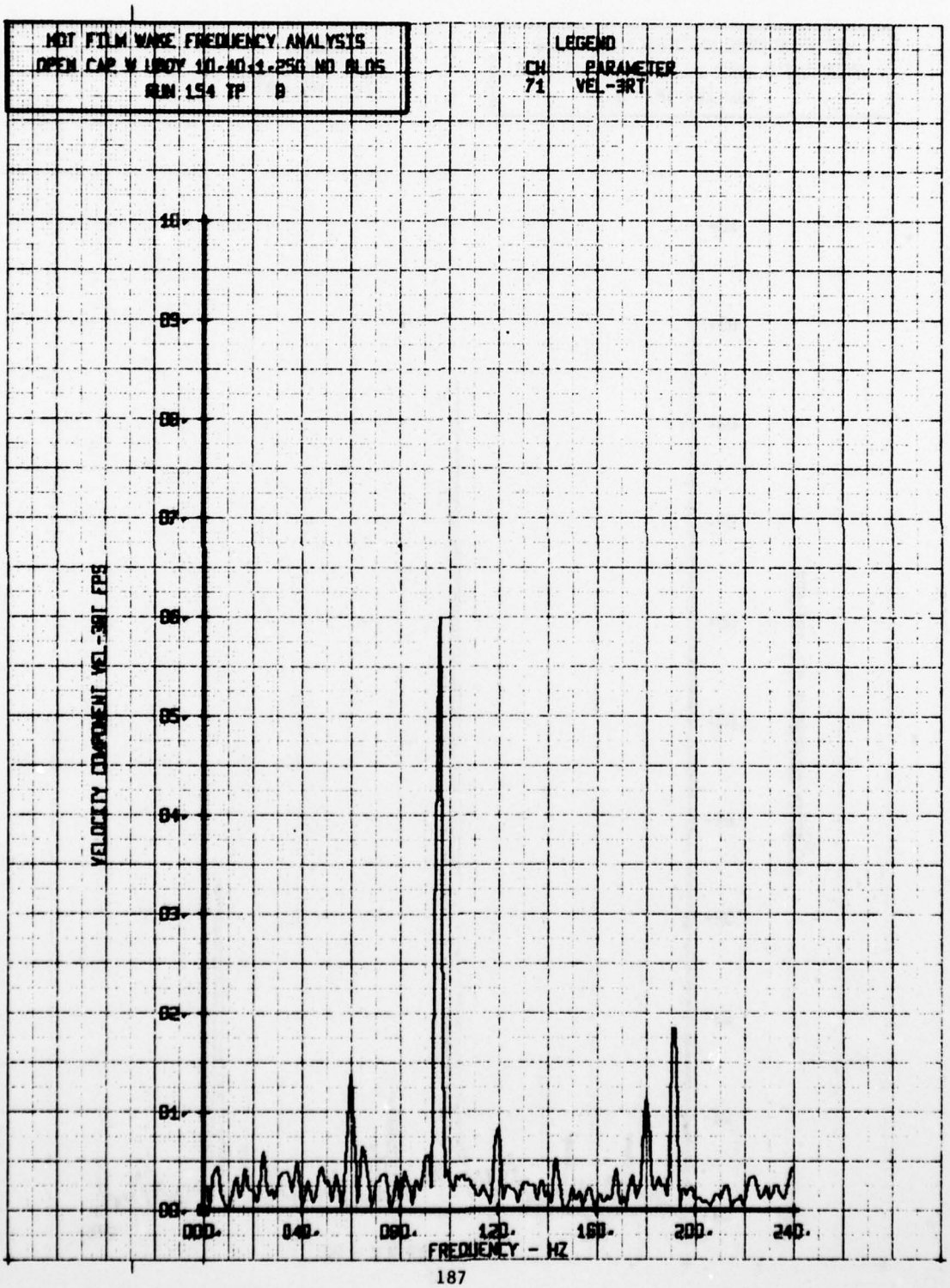
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10.40-1.250 NO BLDG
RUN 154 TP 8
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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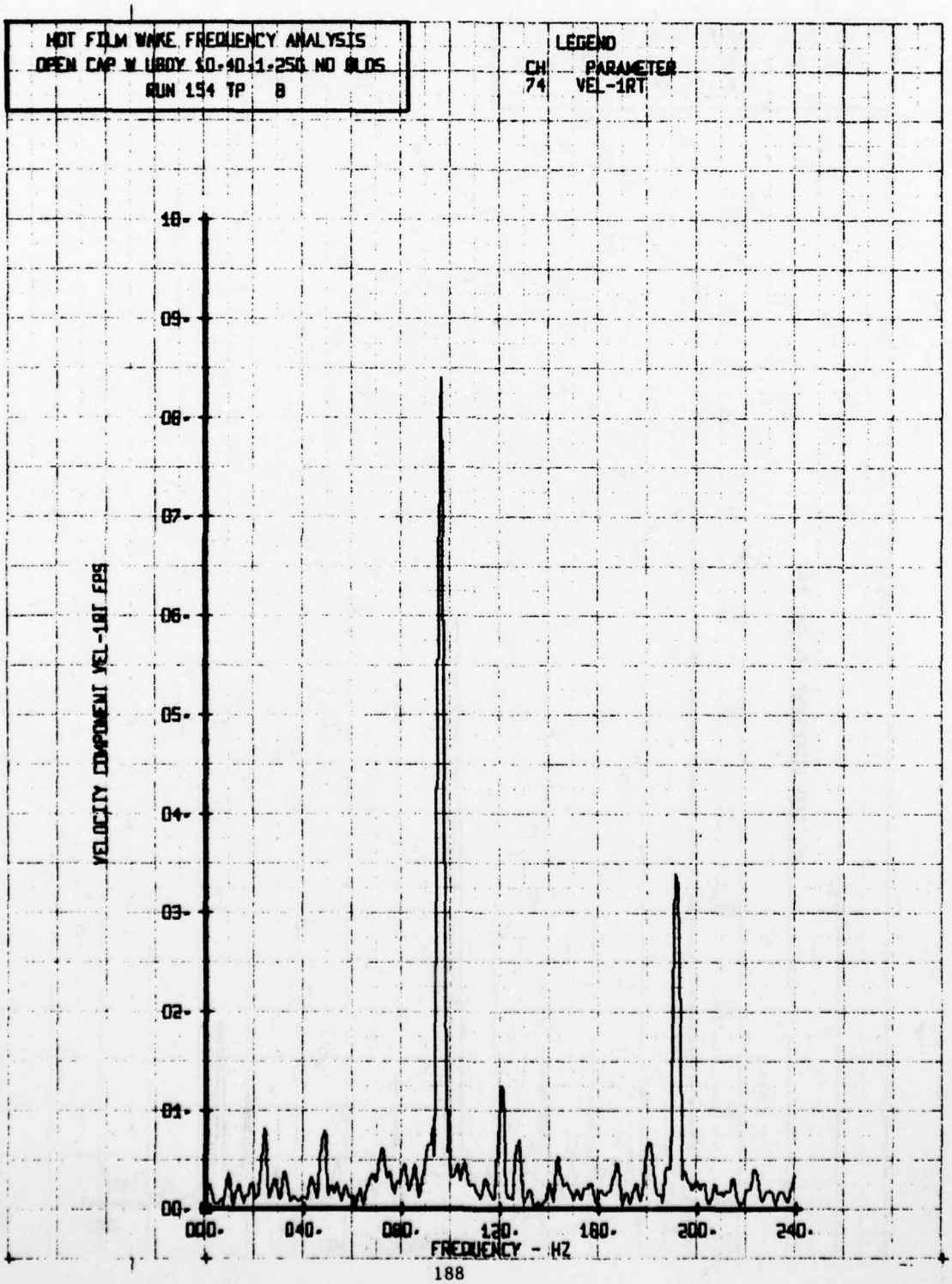
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBODY SD-10.1-250 NO BLDS
RUN 154 TP 8
LEGEND
CH PARAMETER
74 VEL-1RT
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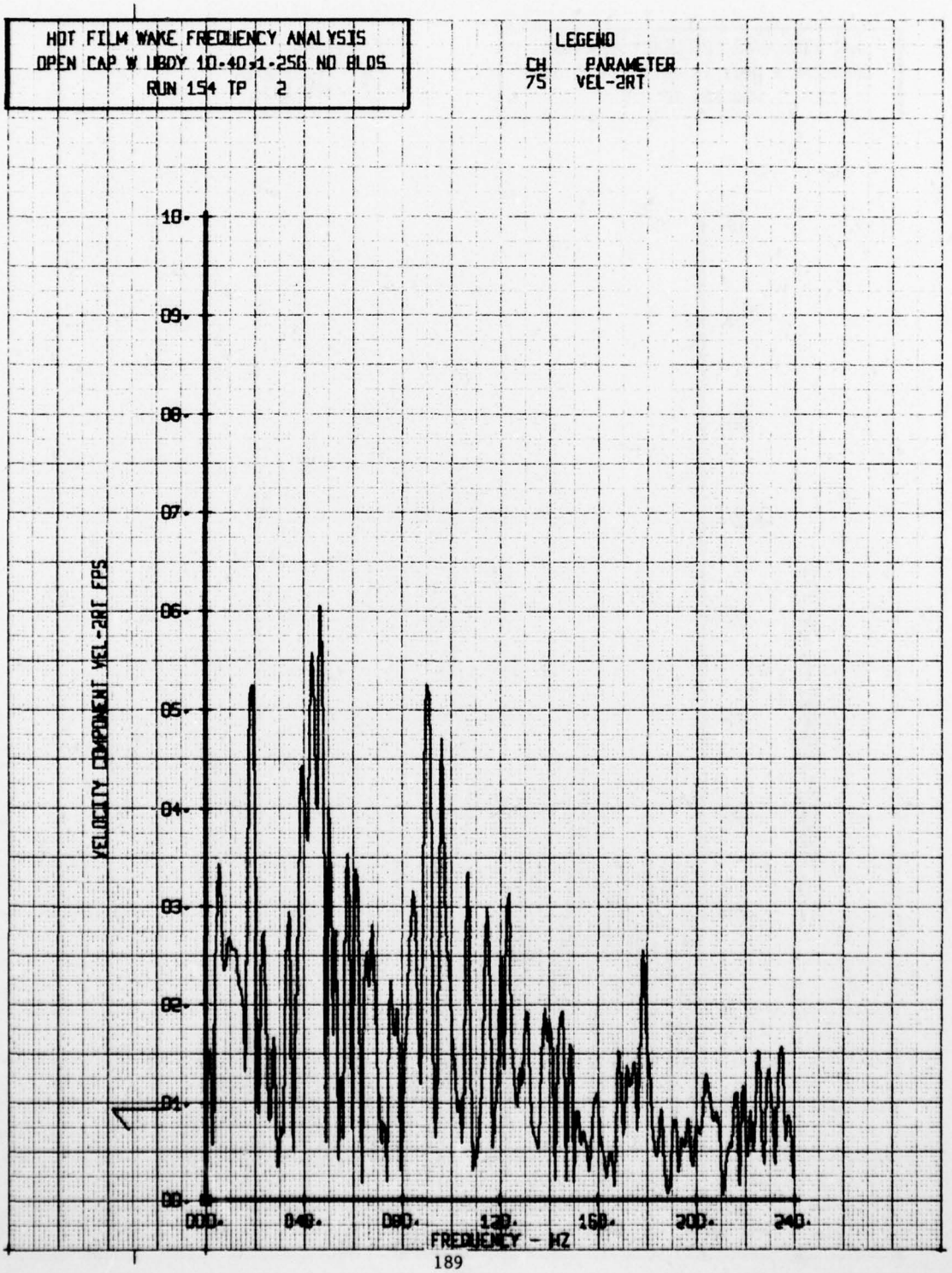
FREQUENCY - HZ
VELOCITY COMPONENT VEL-1RT EDS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OPEN CAP W UBDY 10-40-1-250 NO BLDS
RUN 154 TP 2
LEGEND
CH PARAMETER
75 VEL-2RT
VELOCITY COMPONENT VEL-2RT FPS
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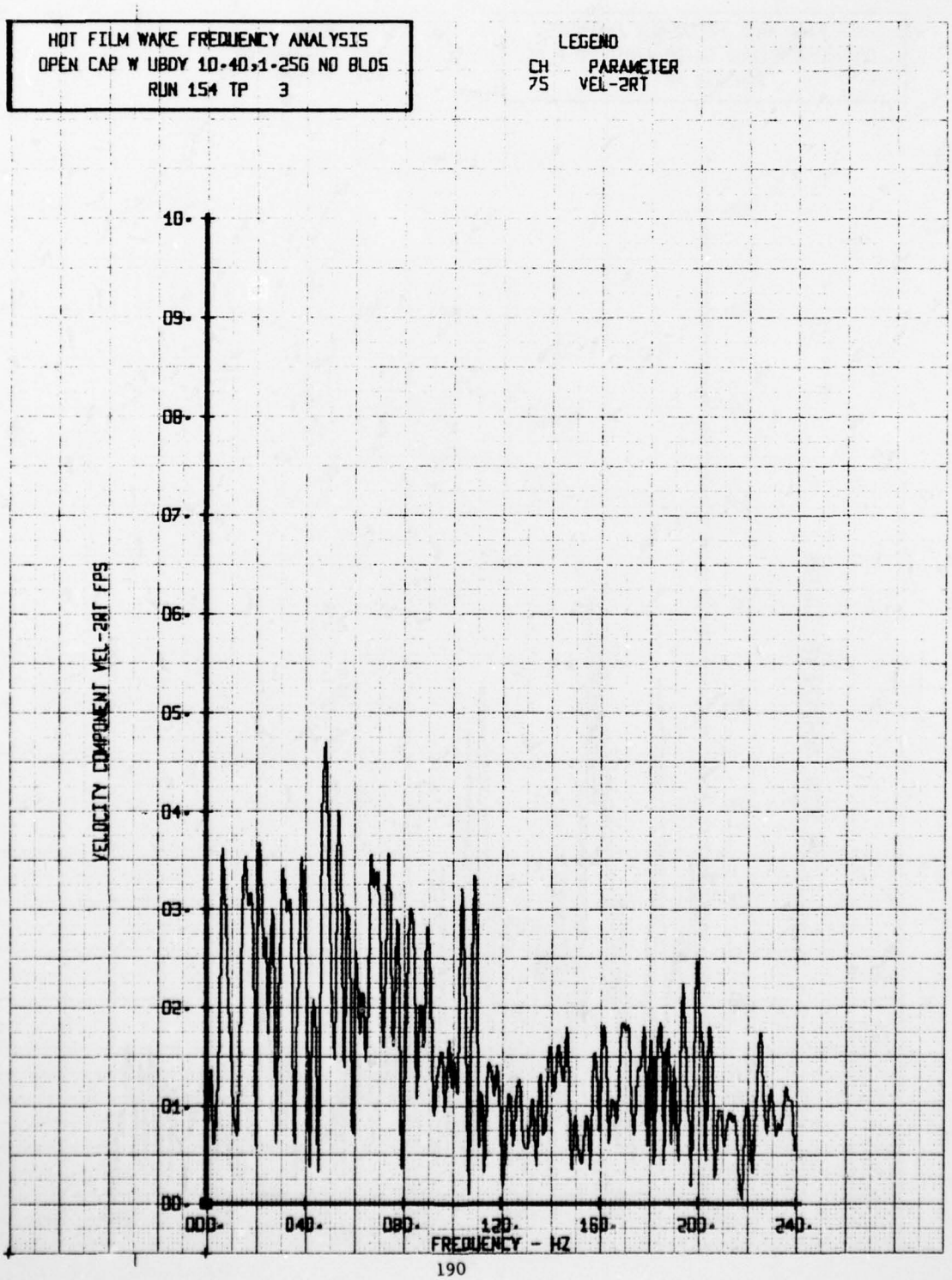
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLDS
RUN 154 TP 3
LEGEND
CH PARAMETER
75 VEL-2RT
VELOCITY COMPONENT VEL-2RT FPS
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INTERACTIONAL AERODYNAMICS OF THE SINGLE ROTOR HELICOPTER CONFI--ETC(U)
SEP 78 P F SHERIDAN DAAJ02-77-C-0020
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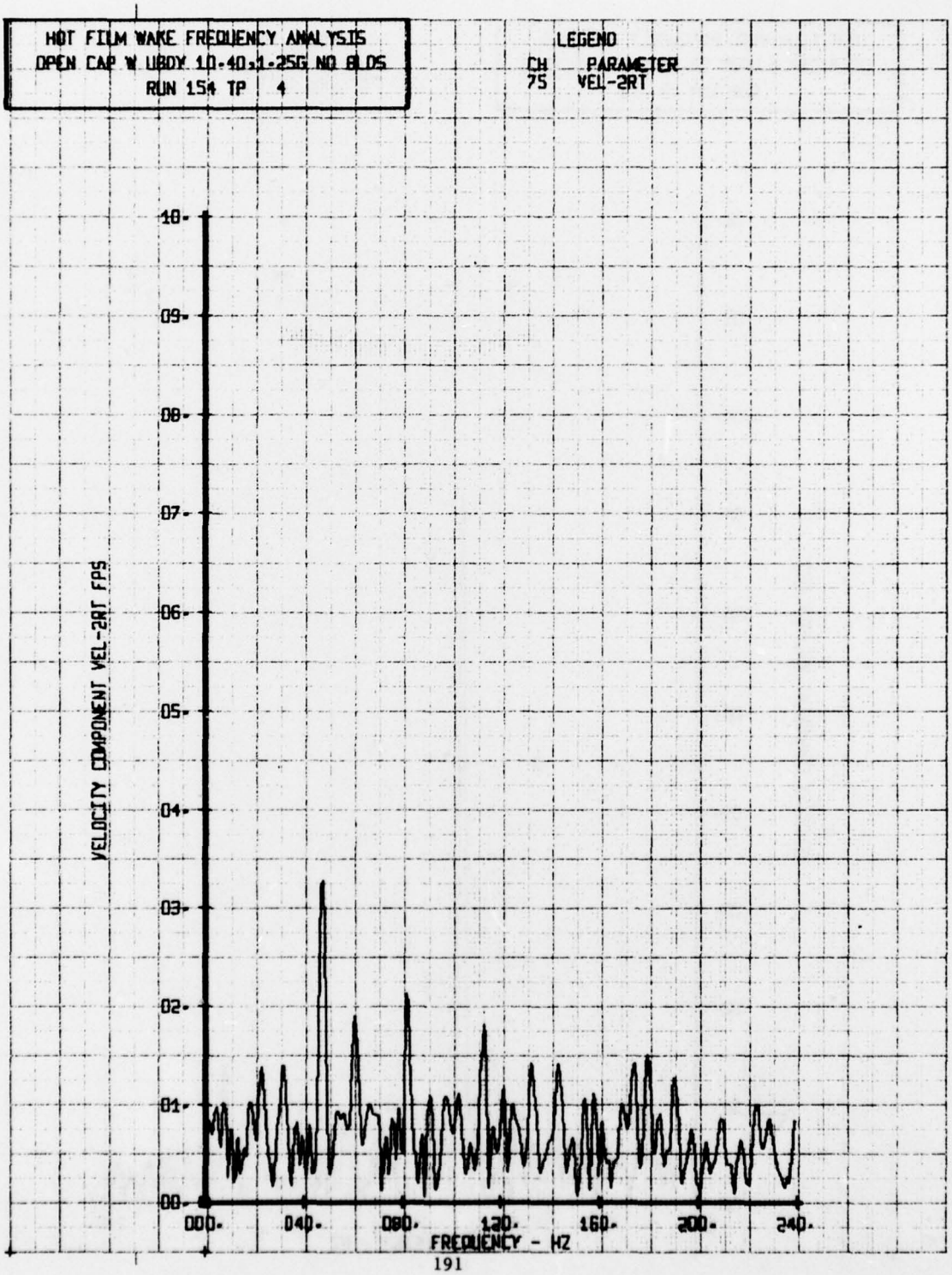
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLDS
RUN 154 TP 4
LEGEND
CH PARAMETER
75 VEL-2RT
VELOCITY COMPONENT VEL-2RT FPS
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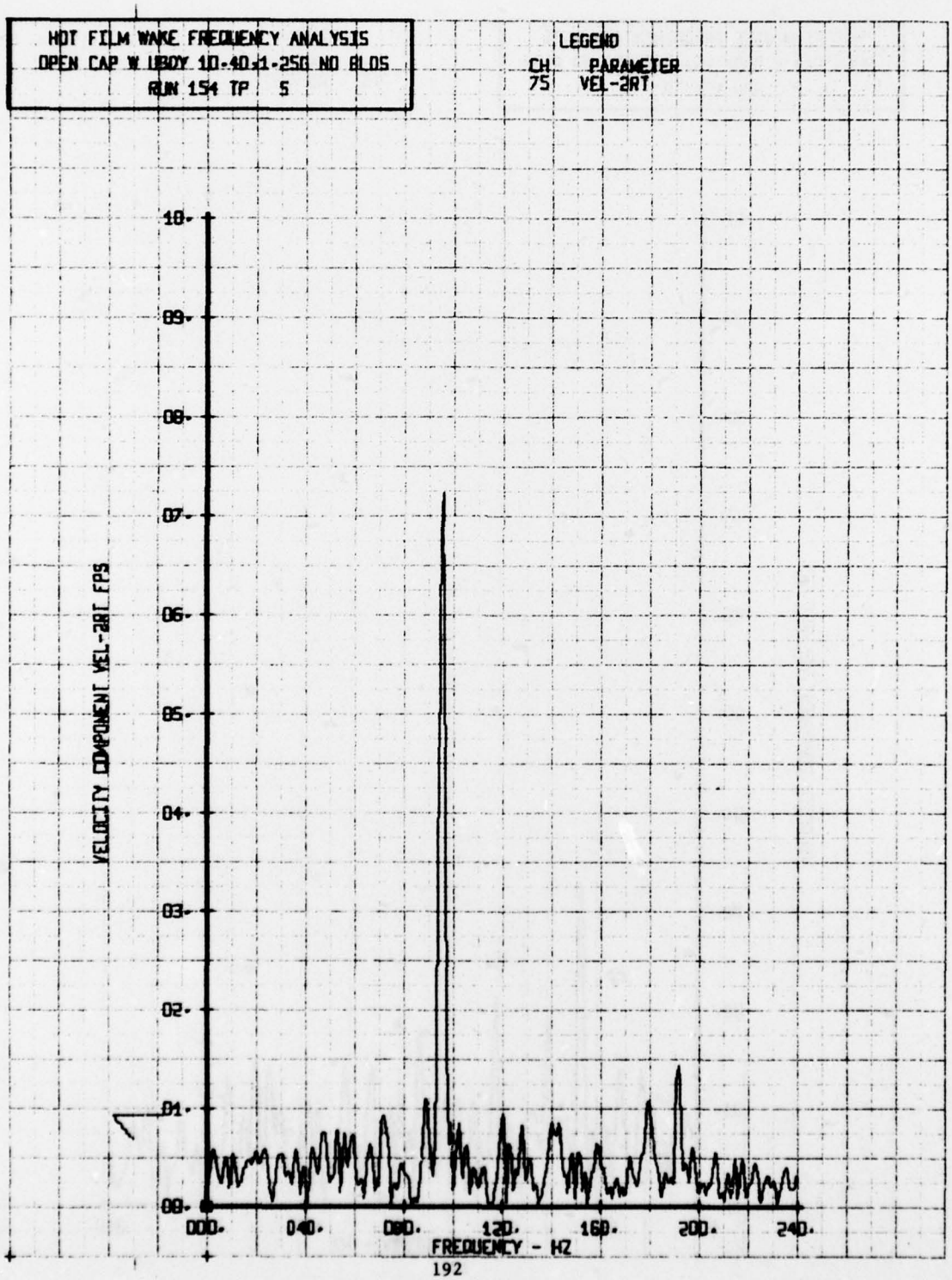
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBOY 10-40-1-250 NO BLOS
RUN 154 TP 5
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-2RT FPS
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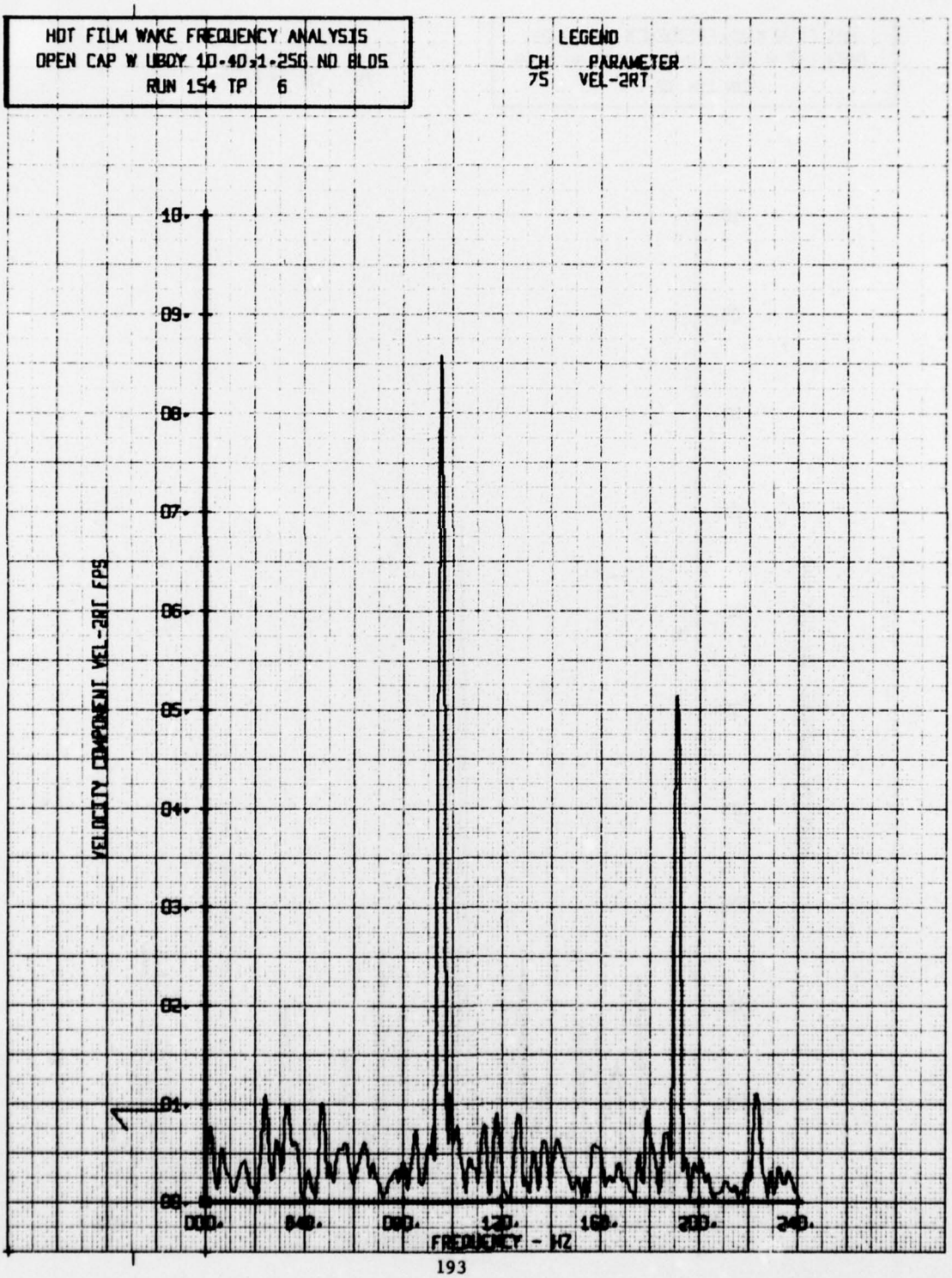
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10-40;1-250 NO BLDS
RUN 154 TP 6
LEGEND
CH PARAMETER
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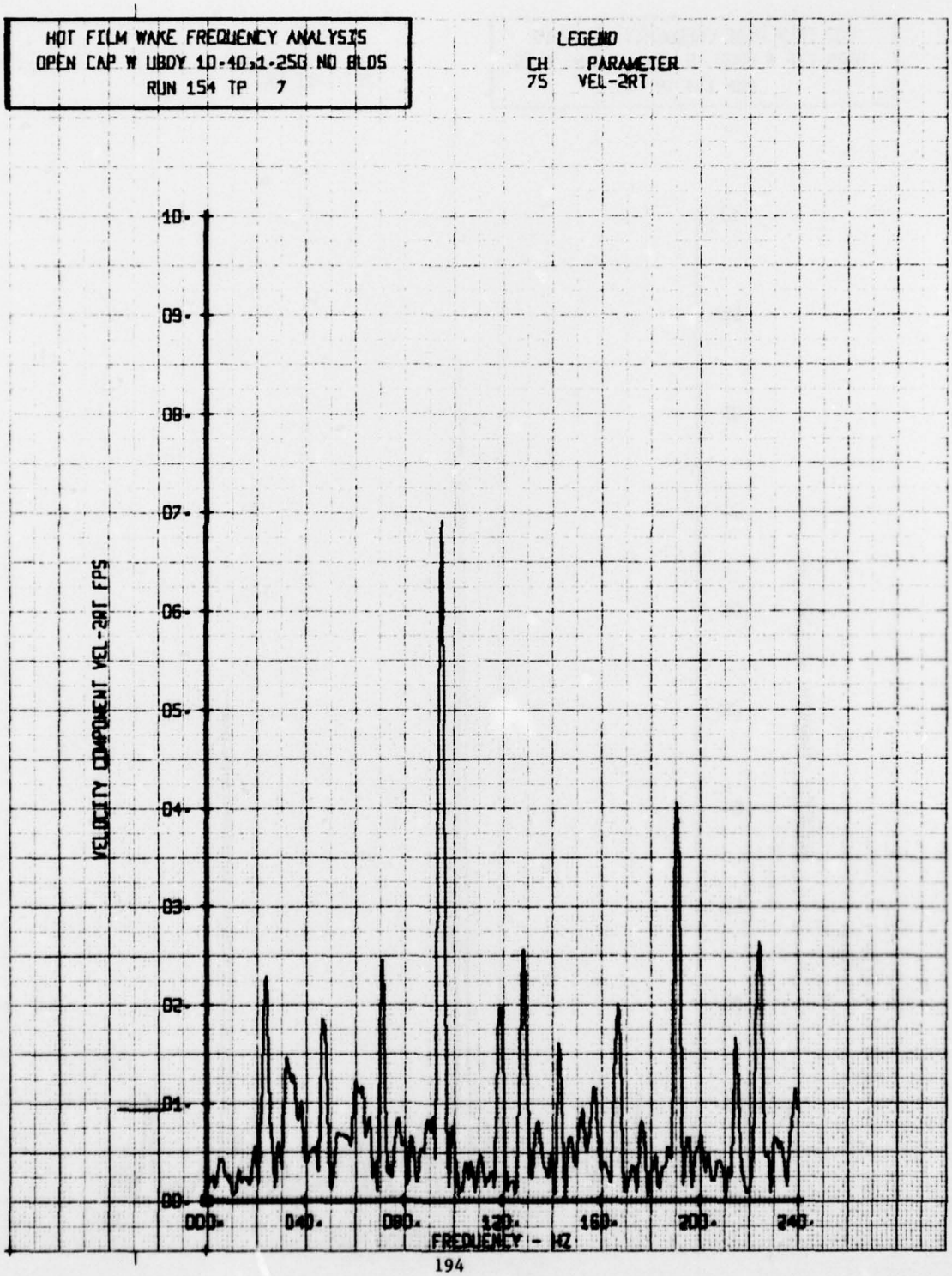
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLDS
RUN 154 TP 7
LEGEND
CH PARAMETER
75 VEL-2RT
VELOCITY COMPONENT VEL-2RT FPS
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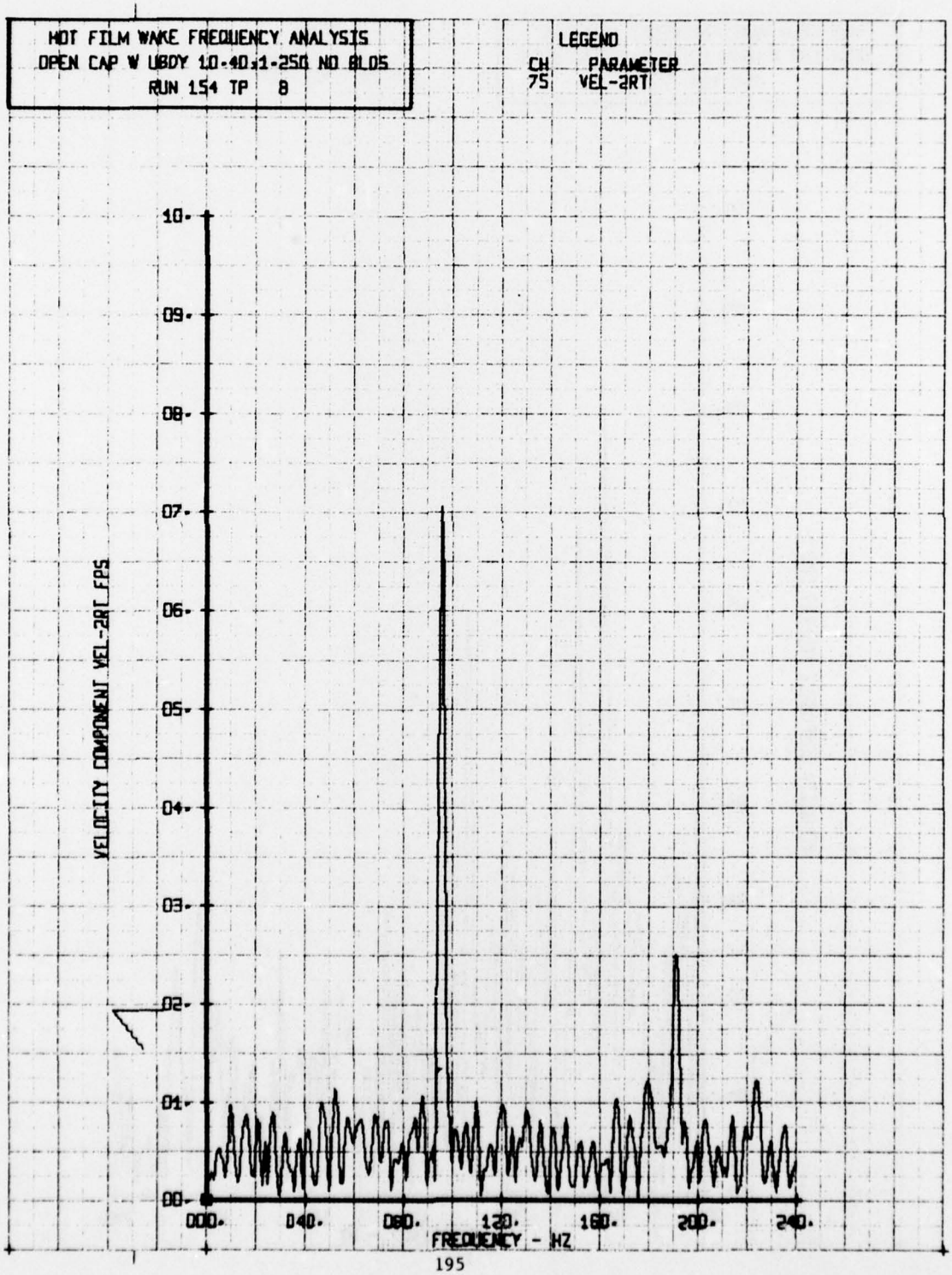
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OPEN CAP W UBDY 10-40-1-250 NO BLDS
RUN 154 TP 8
LEGEND
CH PARAMETER
75 VEL-2RT
VELOCITY COMPONENT VEL-2RT FPS
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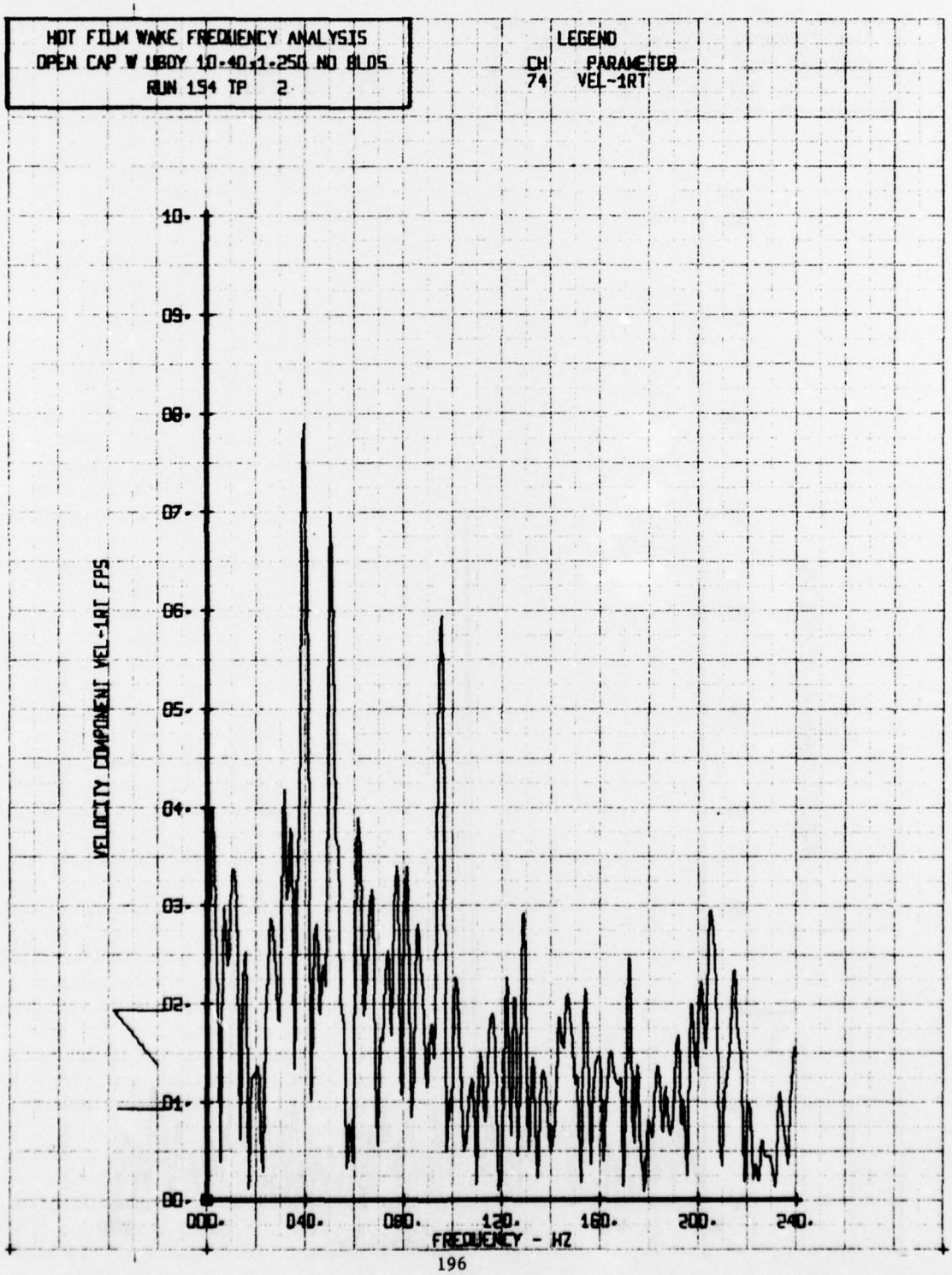
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OPEN CAP W UBOY 10-40-1-250 NO BLDS
RUN 194 TP 2
LEGEND
CH PARAMETER
74 VEL-1RT
VELOCITY COMPONENT VEL-1RT FPS
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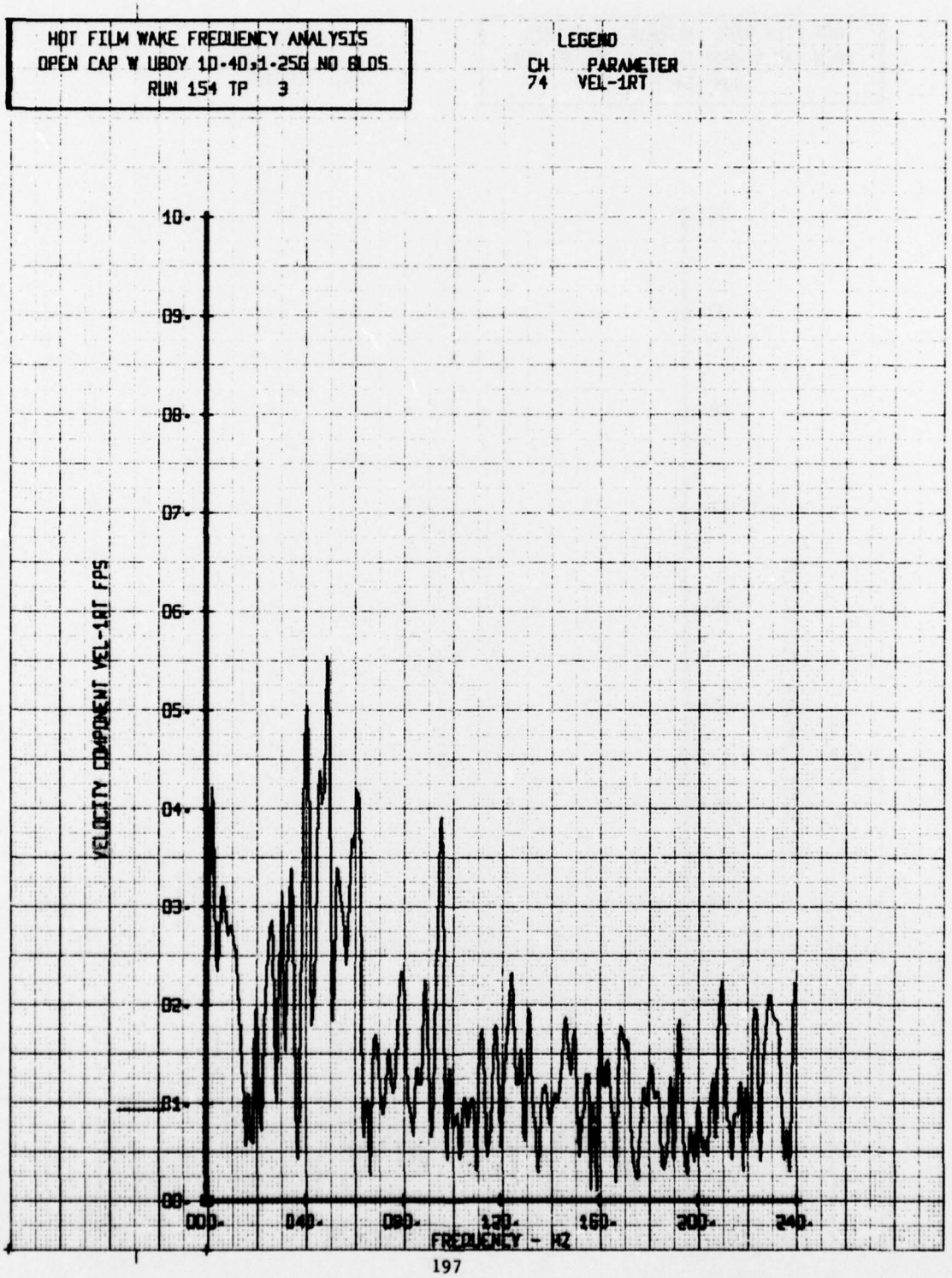
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OPEN CAP W UBDY 1D-4D,1-25G NO BLDS
RUN 154 TP 3
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-1RT FPS
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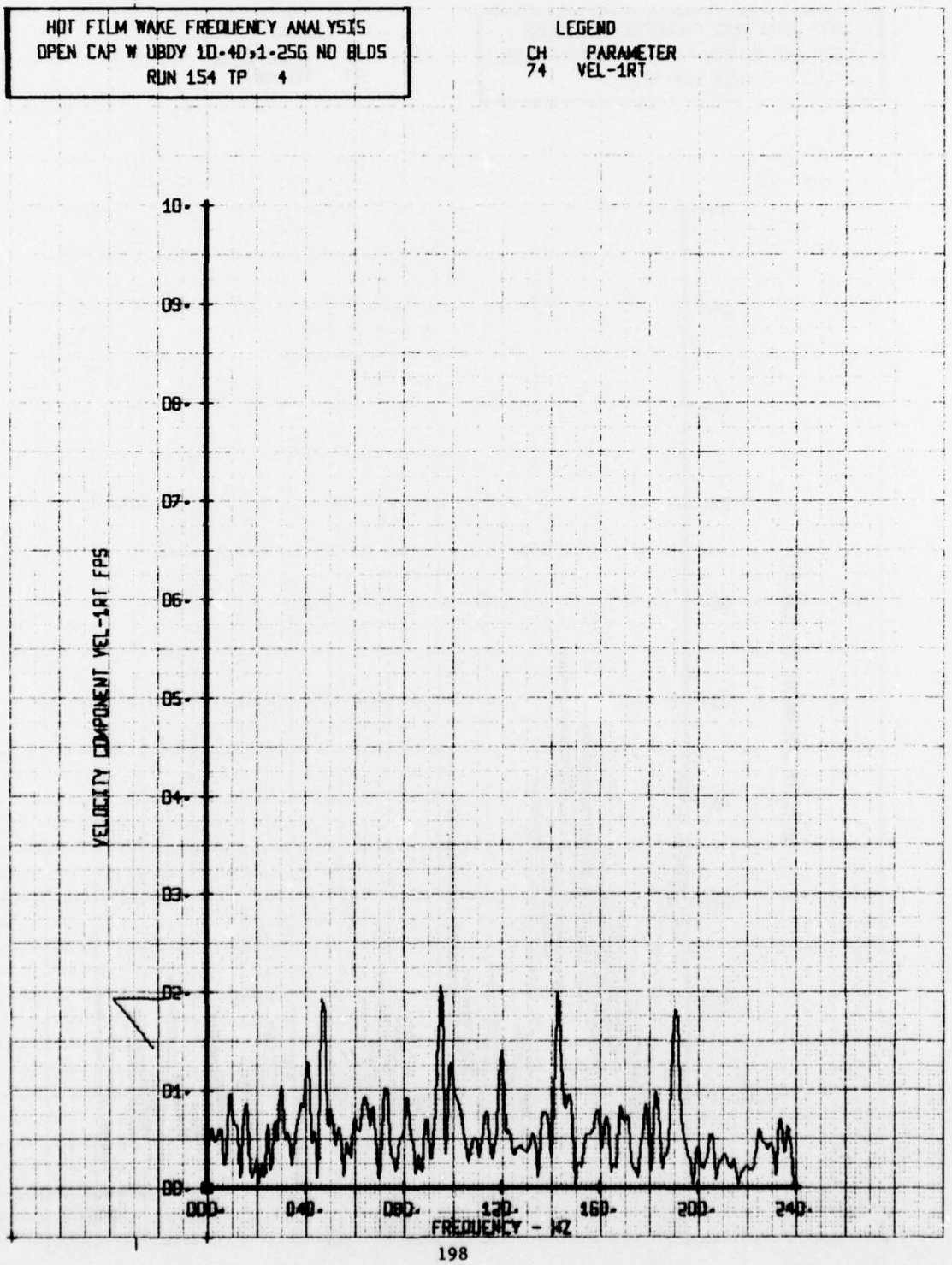
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLDS
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LEGEND
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VELOCITY COMPONENT VEL-1RT FPS
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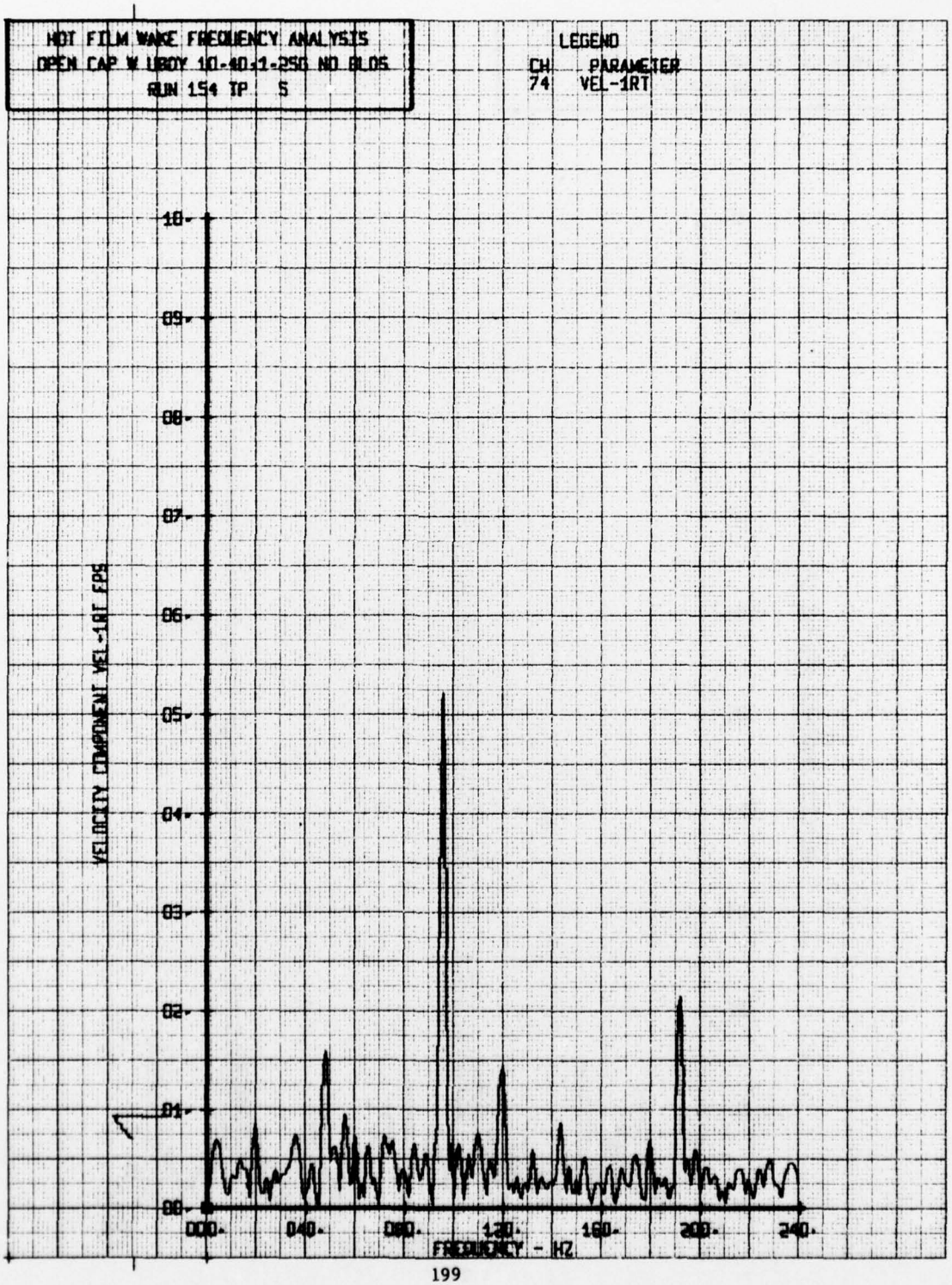
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10-40-1-250 NO BLOS
RUN 154 TP 5
LEGEND
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VELOCITY COMPONENT VEL-1RT FPS
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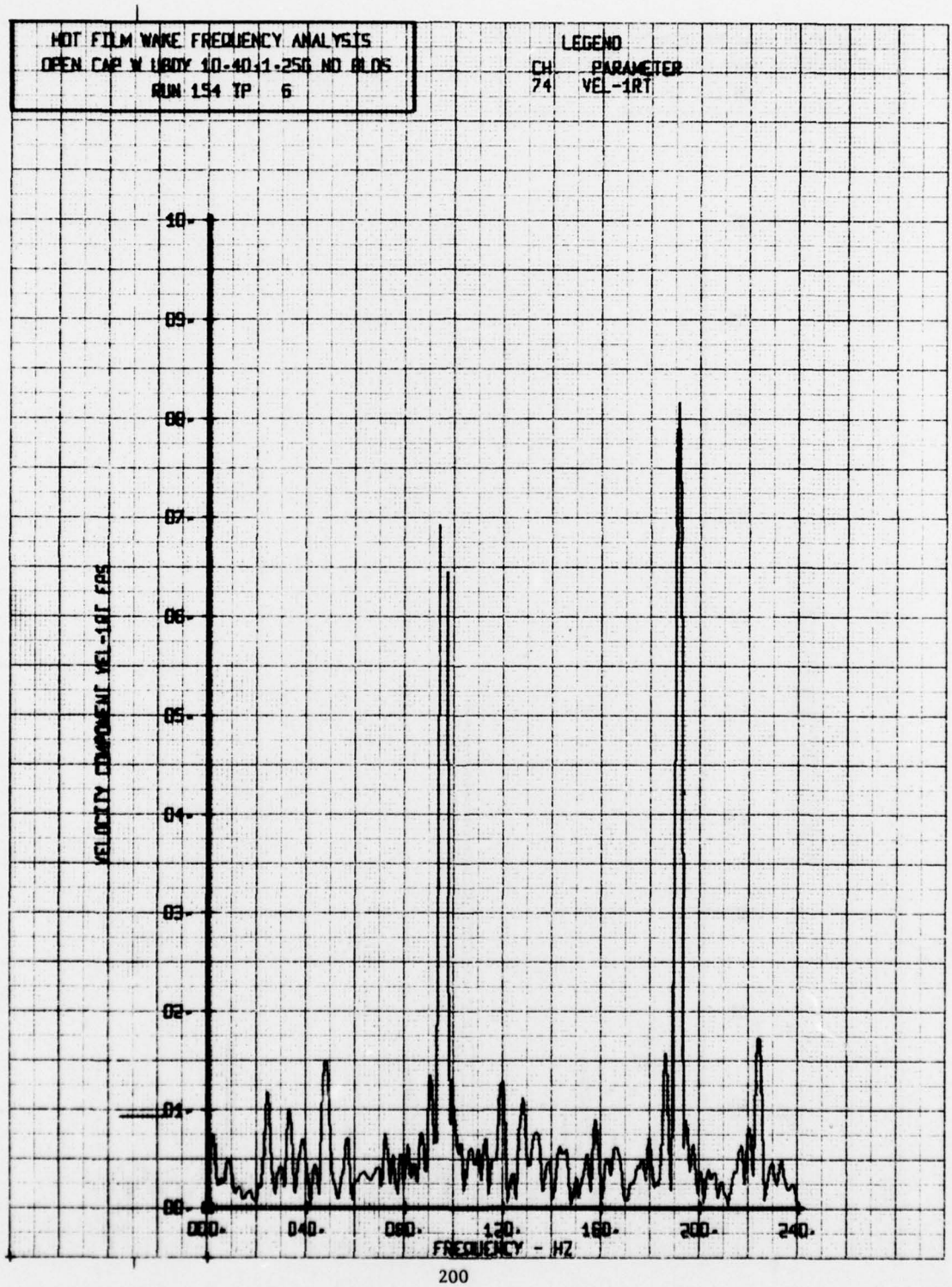
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OPEN CAP W UBODY 10-40-1-25G NO BLOS
RUN 154 TP 6
LEGEND
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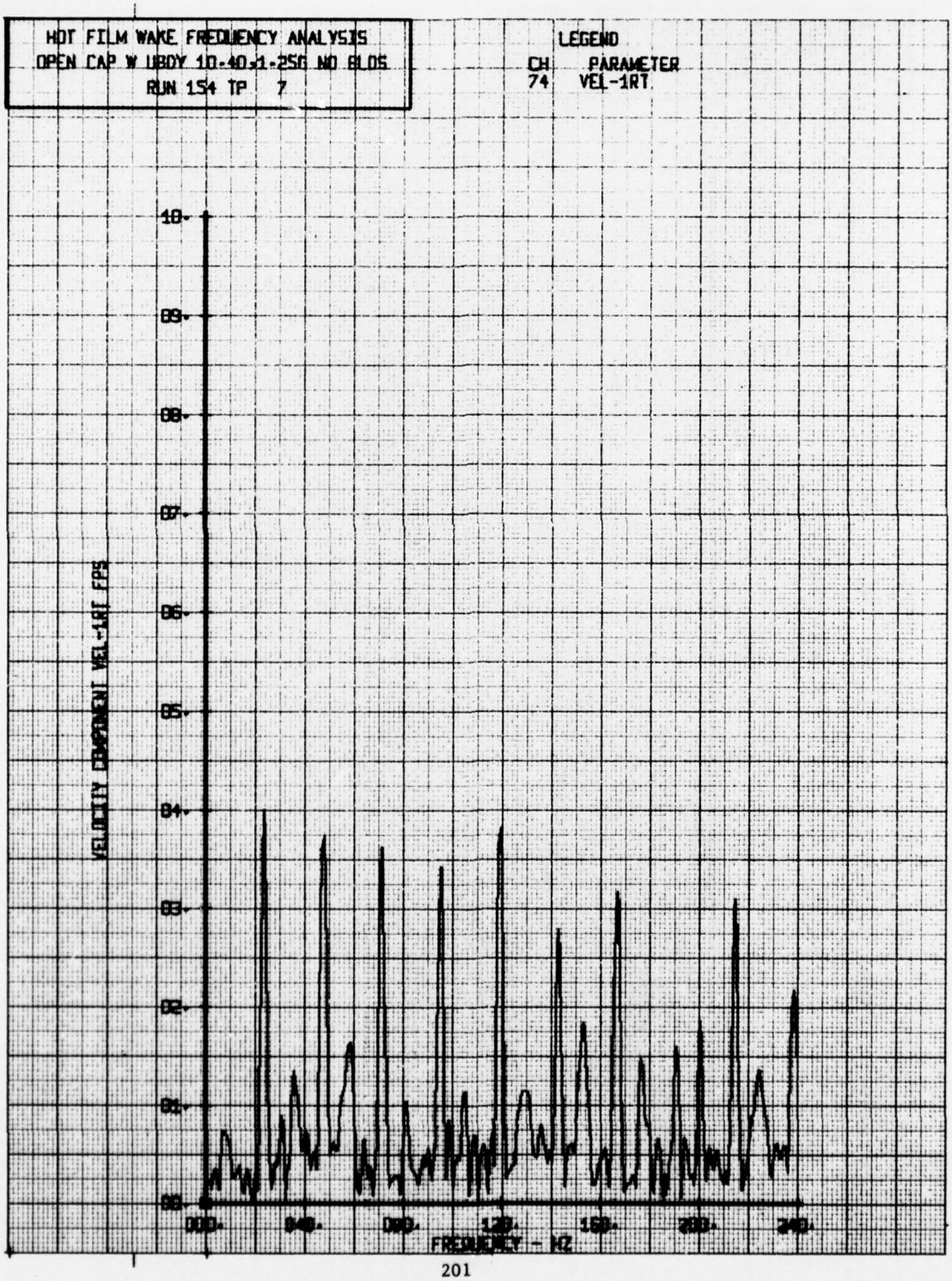
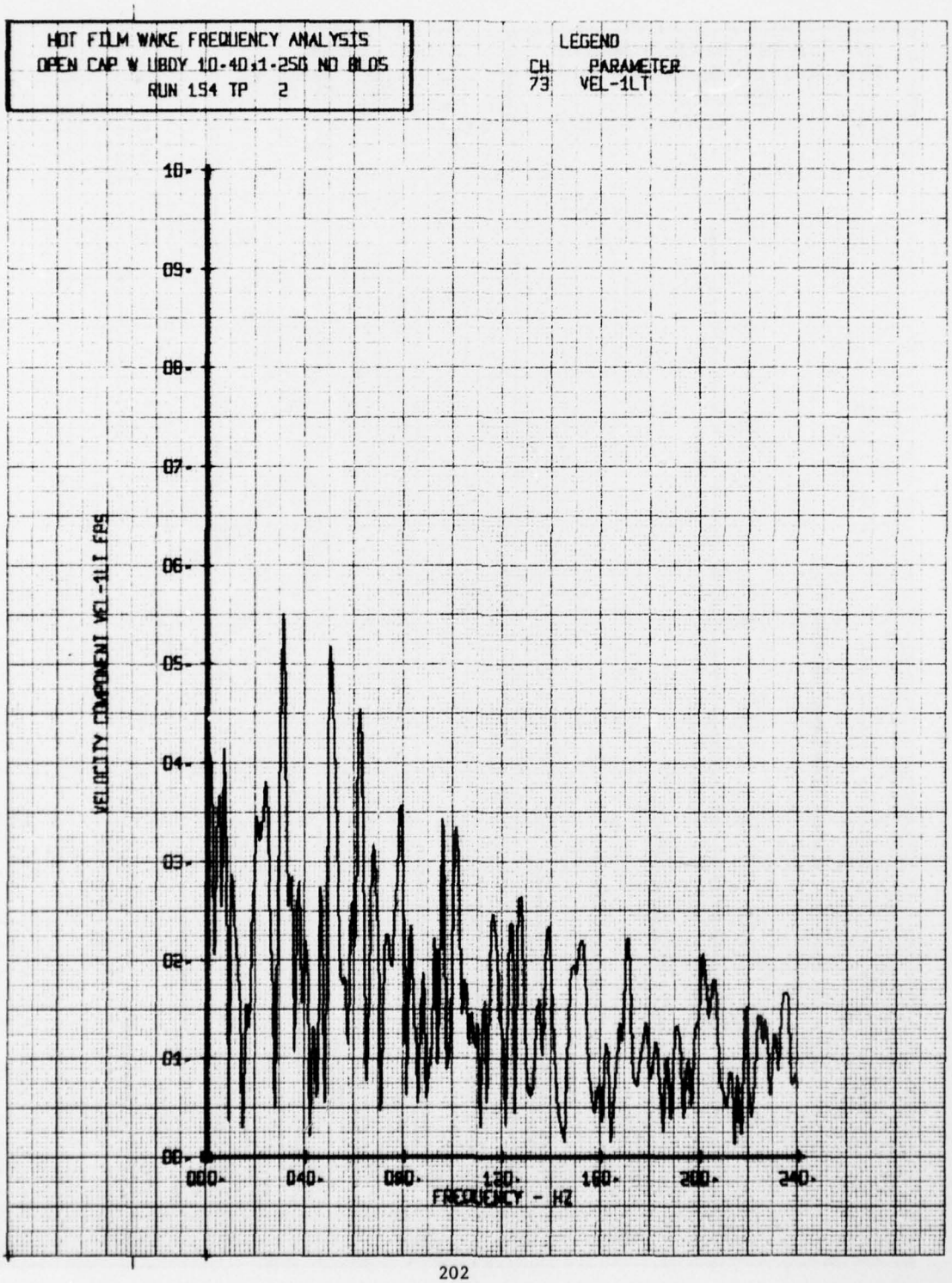

HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40-1-25G NO BLDS
RUN 154 TP 7
LEGEND
CH PARAMETER
74 VEL-1RT
VELOCITY COMPONENT VEL-1RT FPS
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40:1-250 NO BLOS
RUN 194 TP 2
LEGEND
CH PARAMETER
73 VEL-1LT
VELOCITY COMPONENT VEL-1LI FPS
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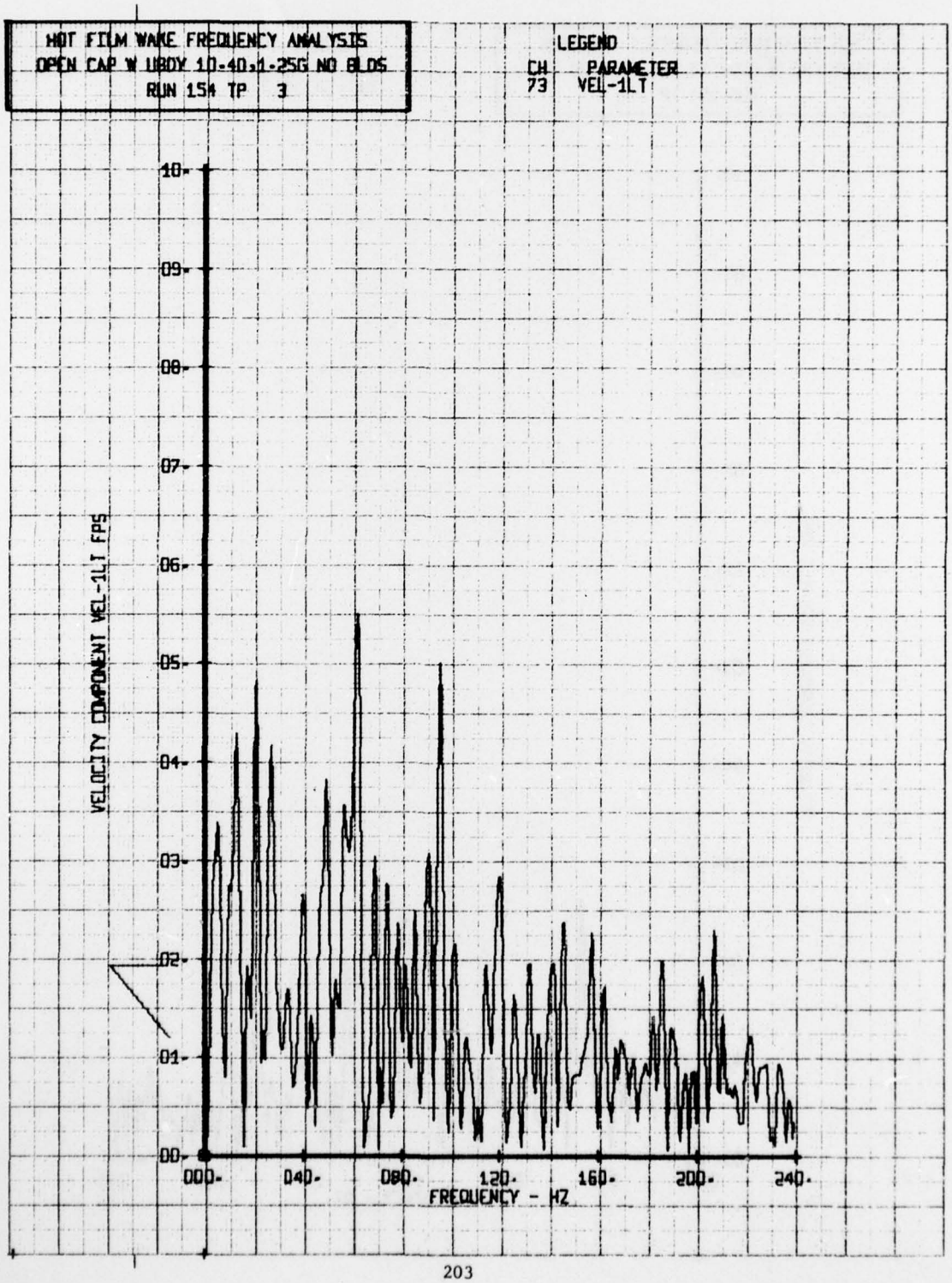
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLDS
RUN 154 TP 3
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-1LT FPS
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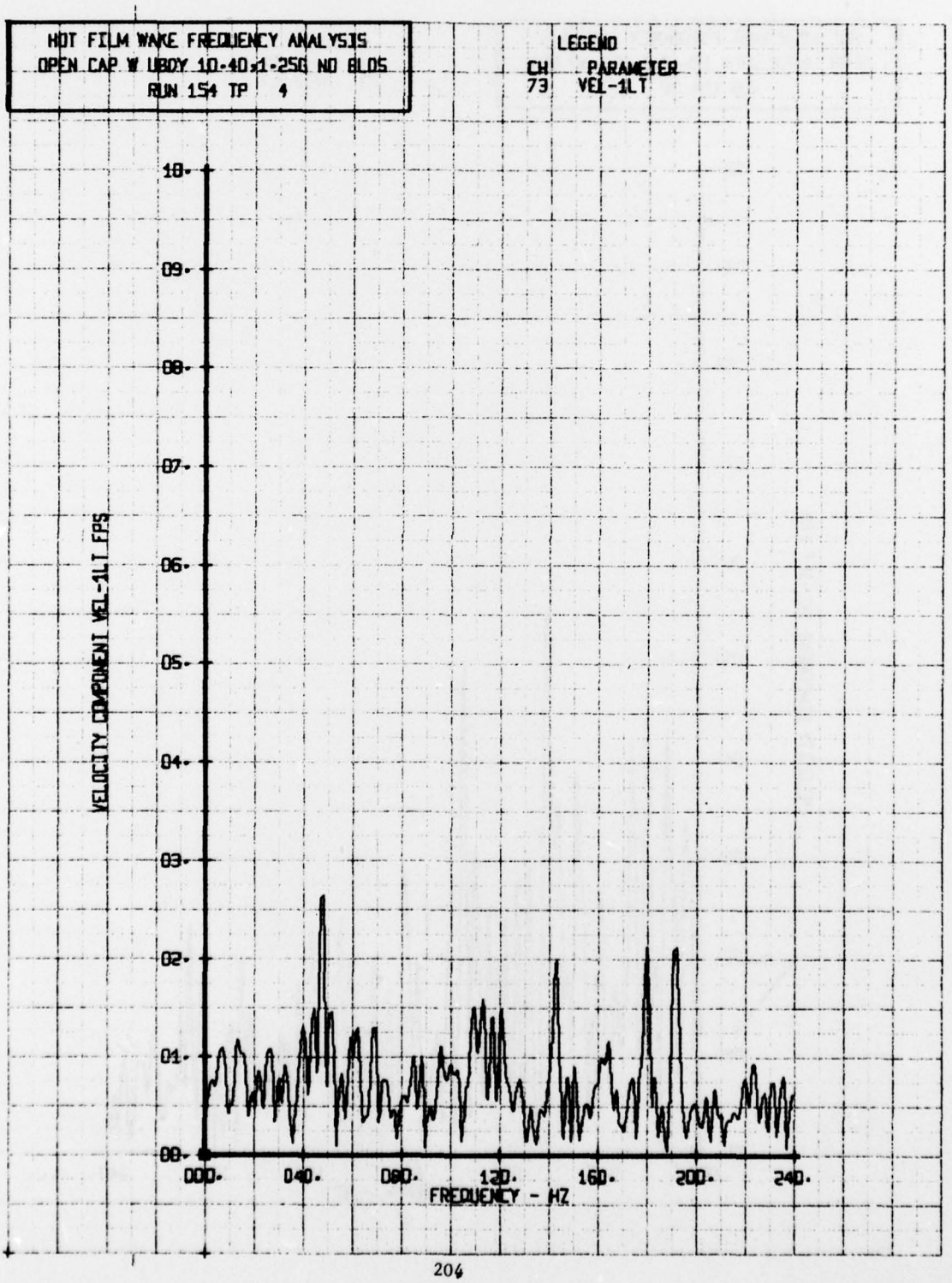
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBODY 10-40,1-25G NO BLOS
RUN 154 TP 4
LEGEND
CH PARAMETER
73 VEL-1LT
VELOCITY COMPONENT VEL-1LT FPS
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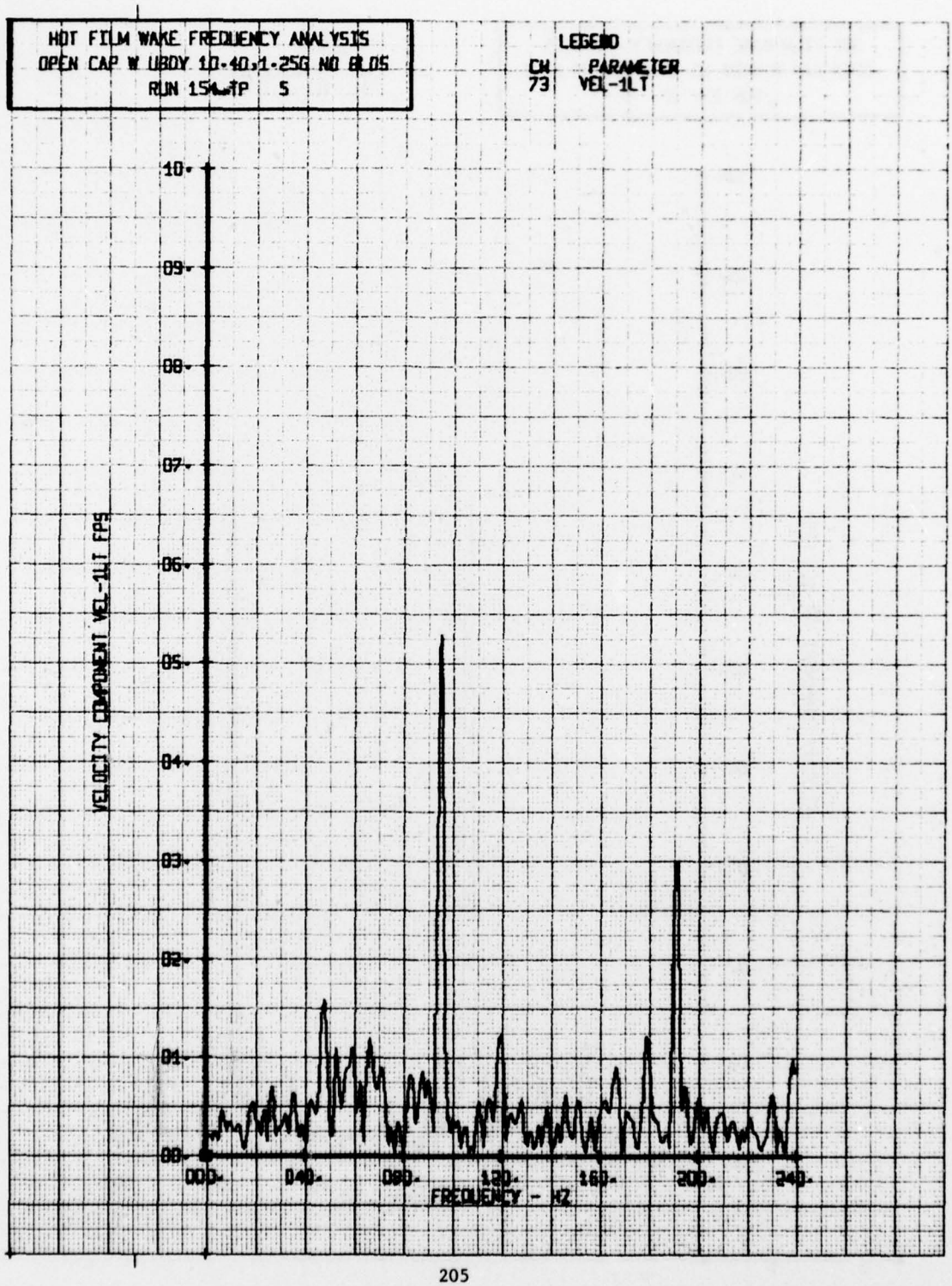
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLOS
RUN 154 TP 5
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VELOCITY COMPONENT VEL-1LT FPS
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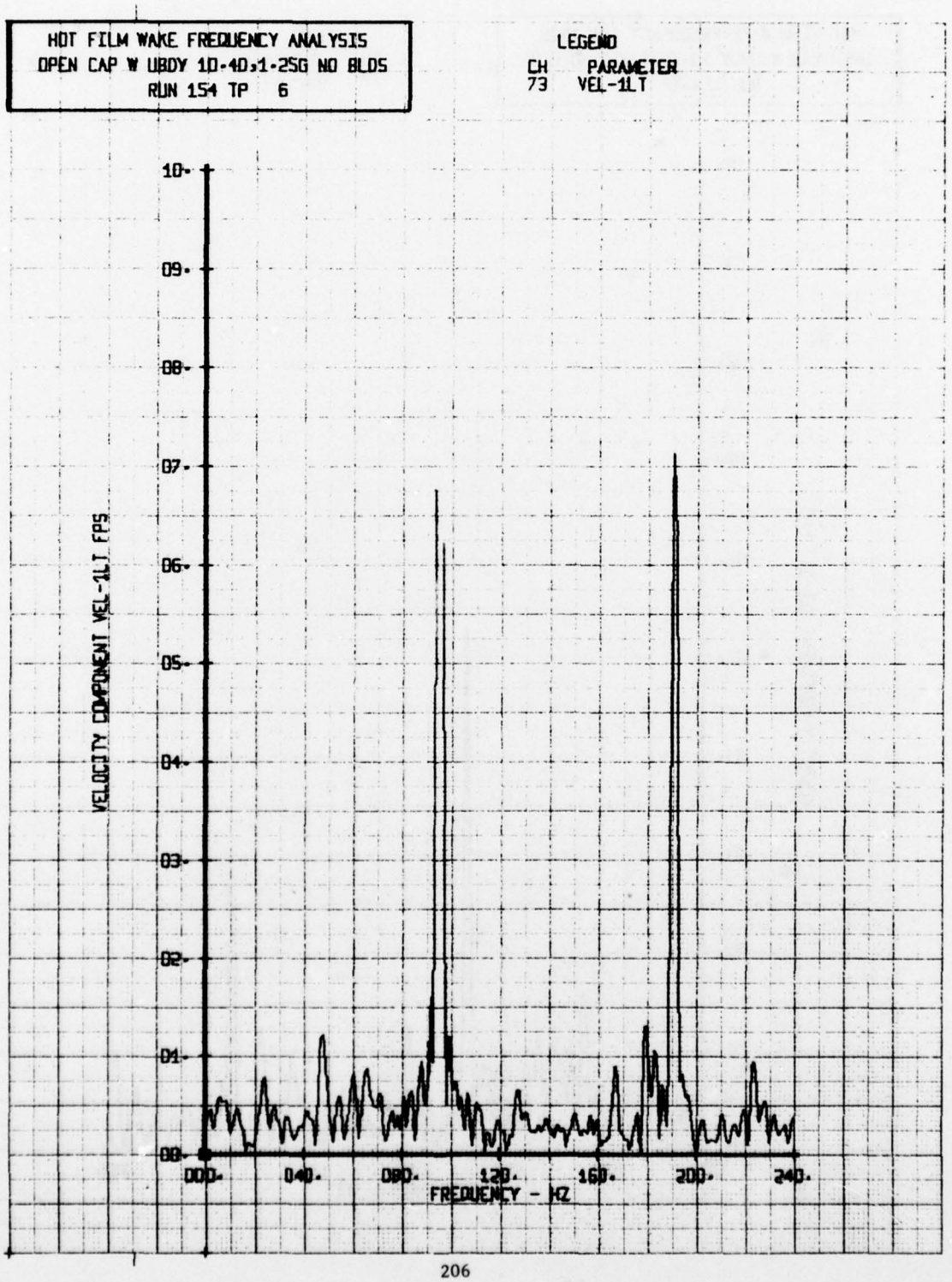
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OPEN CAP W UBDY 1D-4D,1-2SG NO BLDS
RUN 154 TP 6
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-1LT FPS
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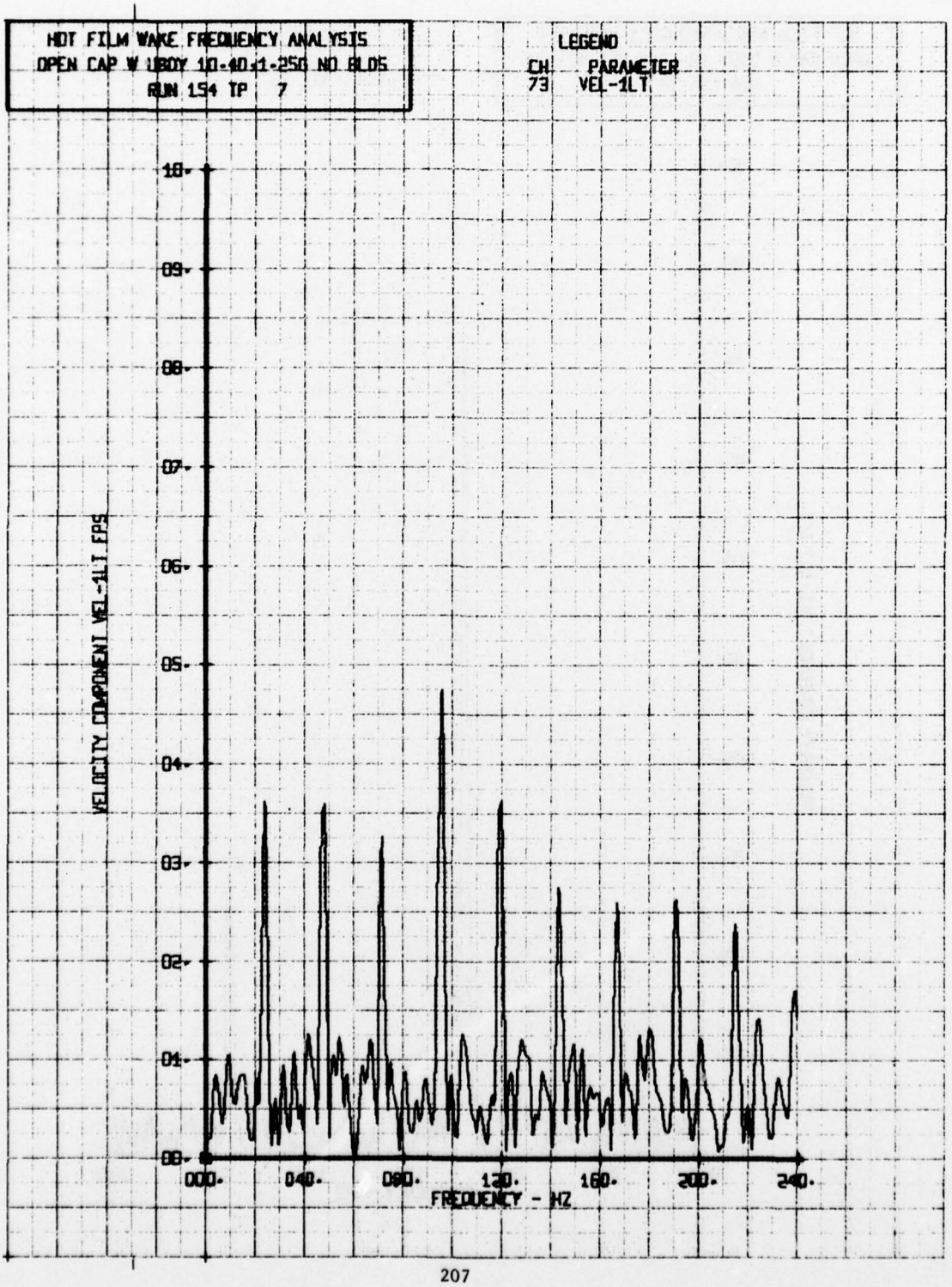
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10-40-1-250 NO BLDS
RUN 154 TP 7
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VELOCITY COMPONENT VEL-1LT FPS
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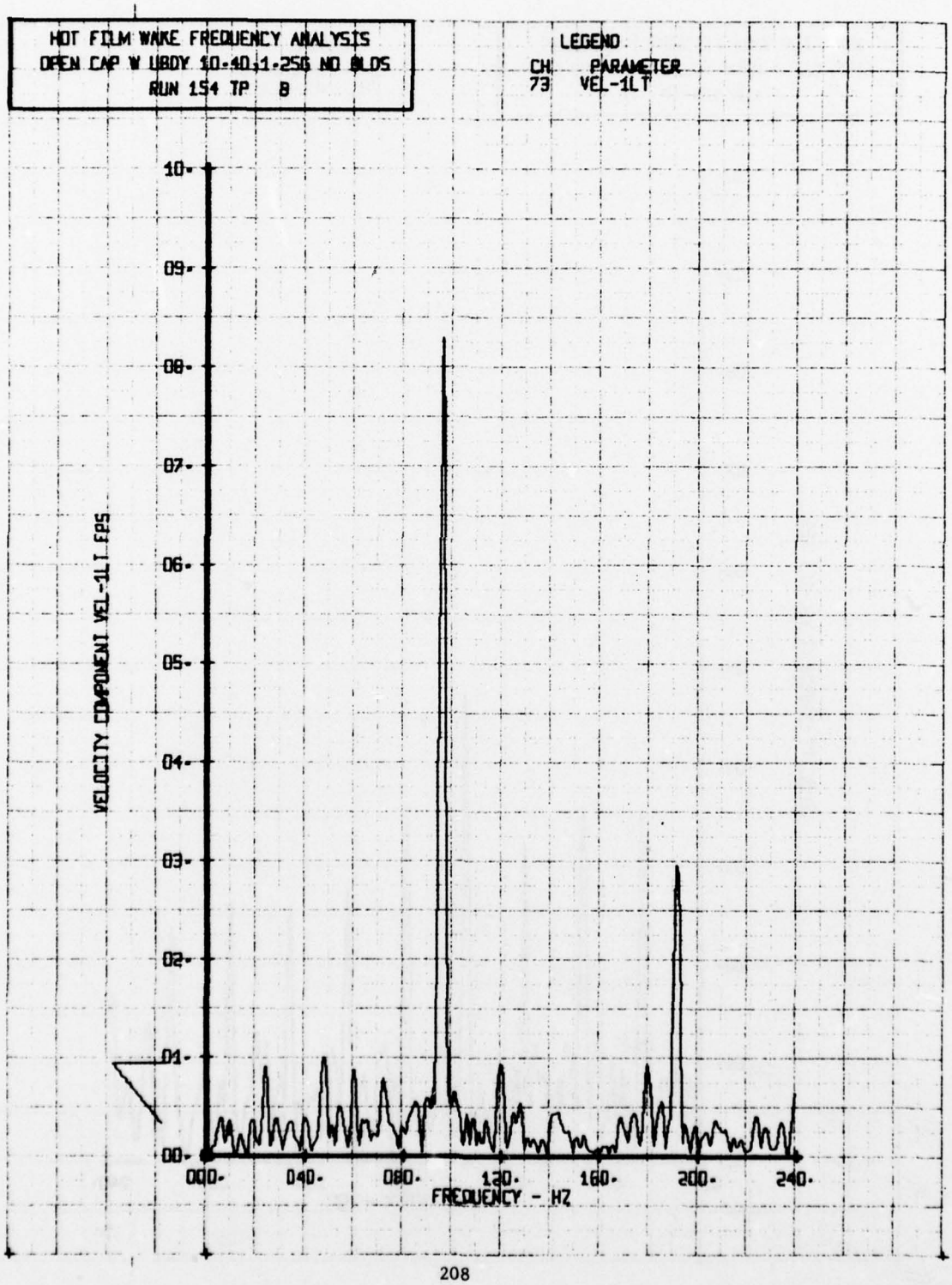
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLDS
RUN 154 TP 8
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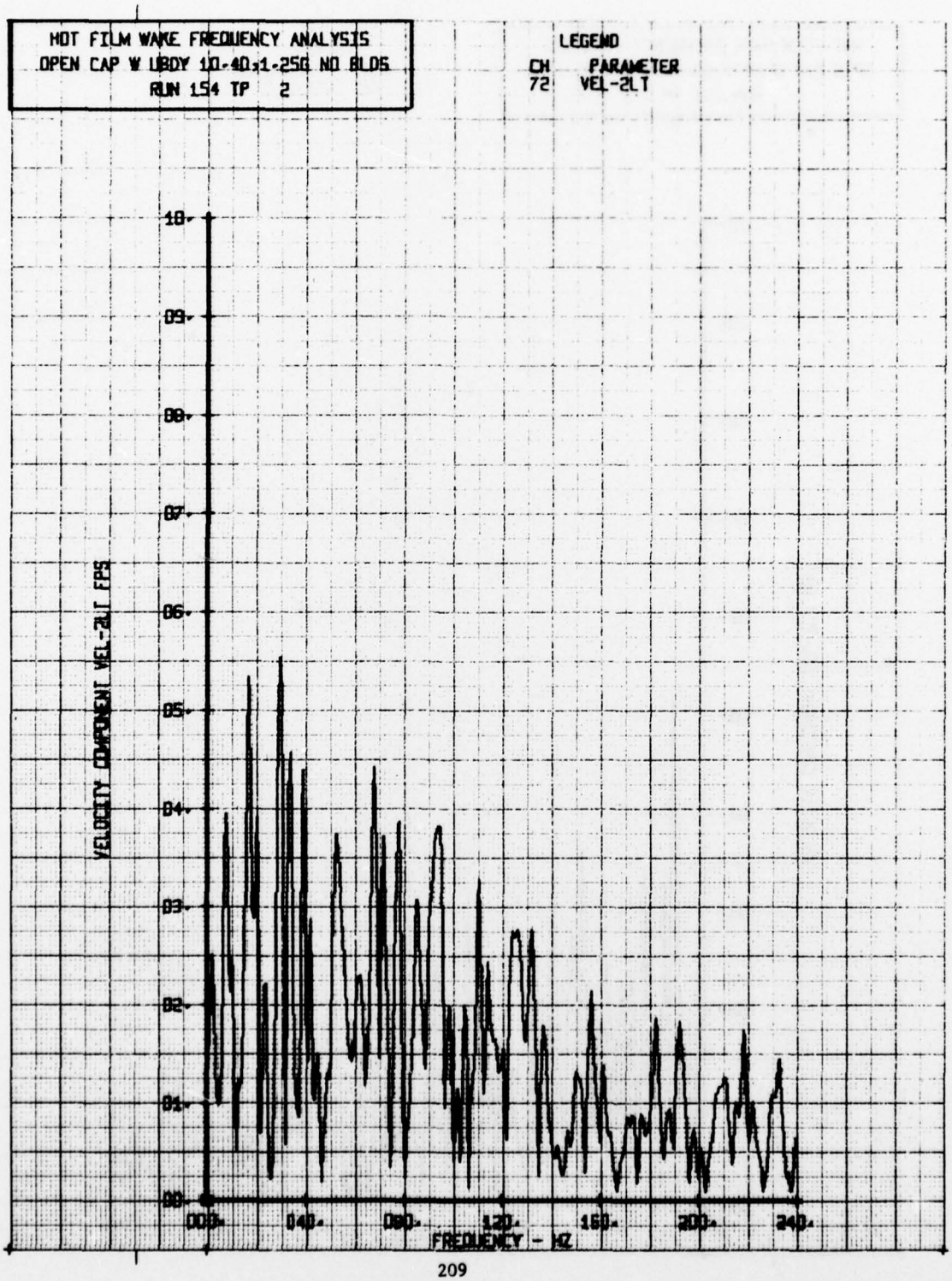
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBODY 10-40,1-25G NO BLDG
RUN 154 TP 2
LEGEND
CH PARAMETER
72 VEL-2LT
VELOCITY COMPONENT VEL-2LT FPS
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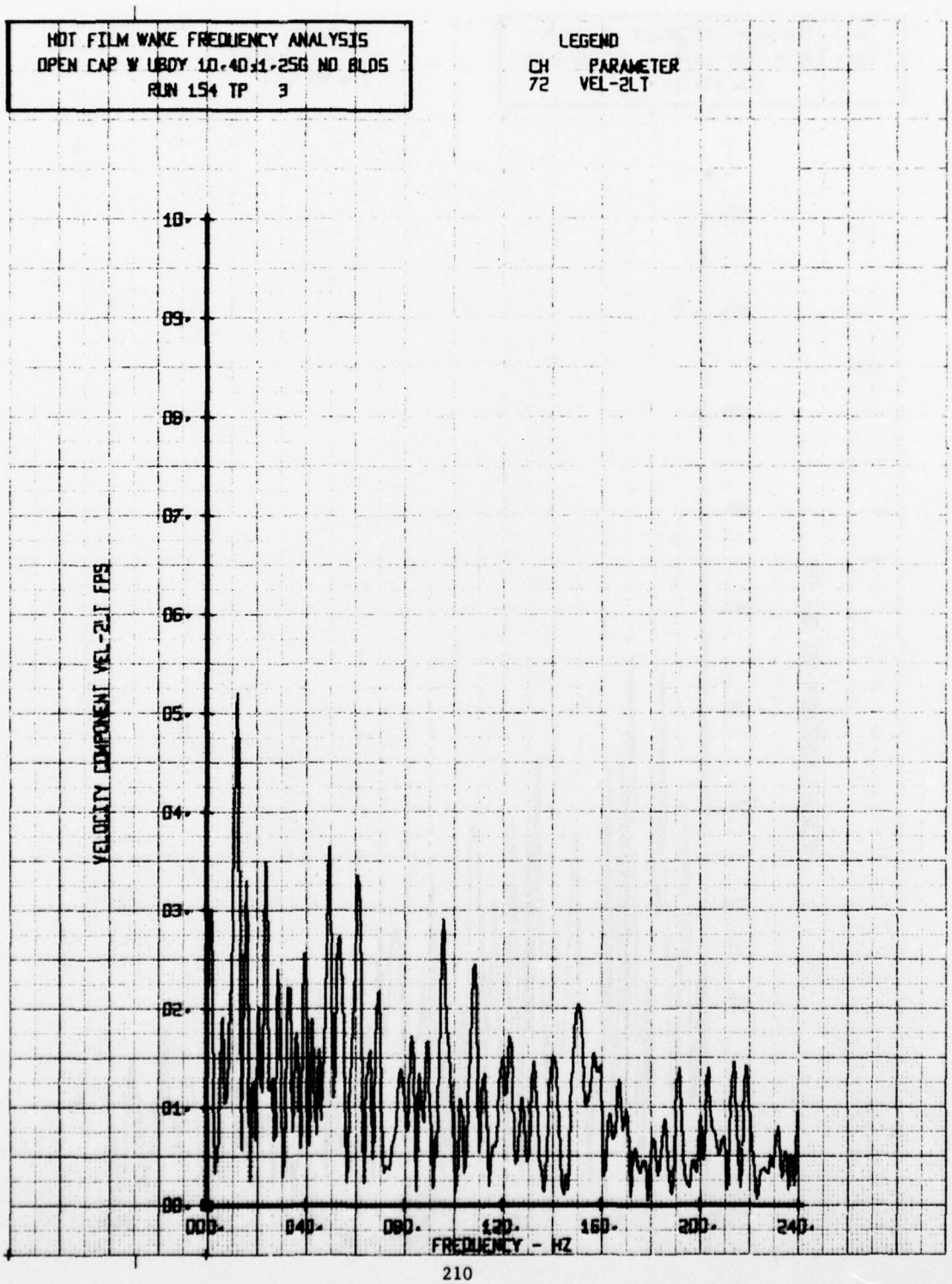
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10.40:1.25G NO BLDS
RUN 154 TP 3
LEGEND
CH PARAMETER
72 VEL-2LT
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VELOCITY COMPONENT VEL-2LT FPS
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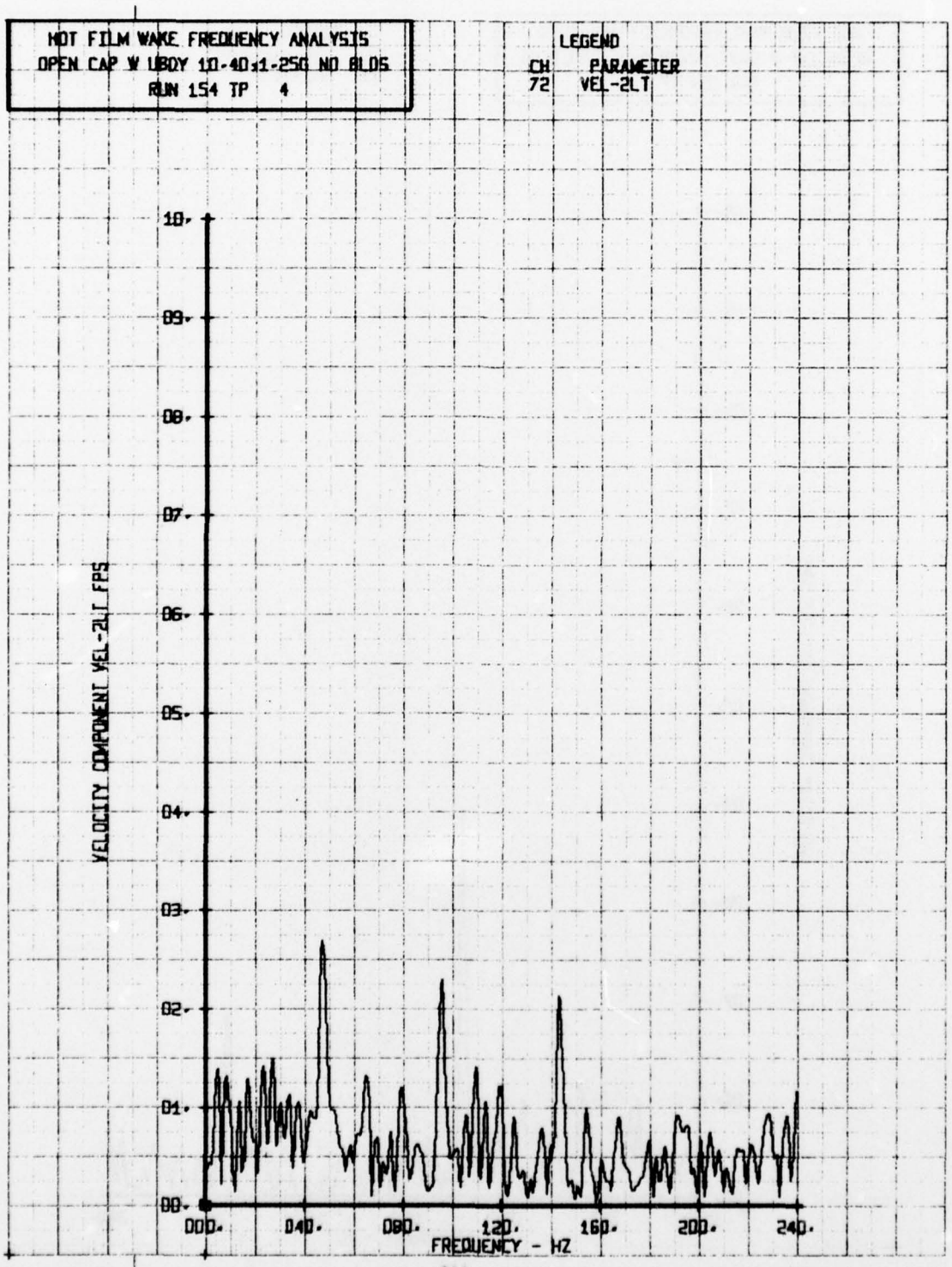
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 10-40;1-25G NO BLDS
RUN 154 TP 4
LEGEND
CH PARAMETER
72 VEL-2LT
VELOCITY COMPONENT VEL-2LT FPS
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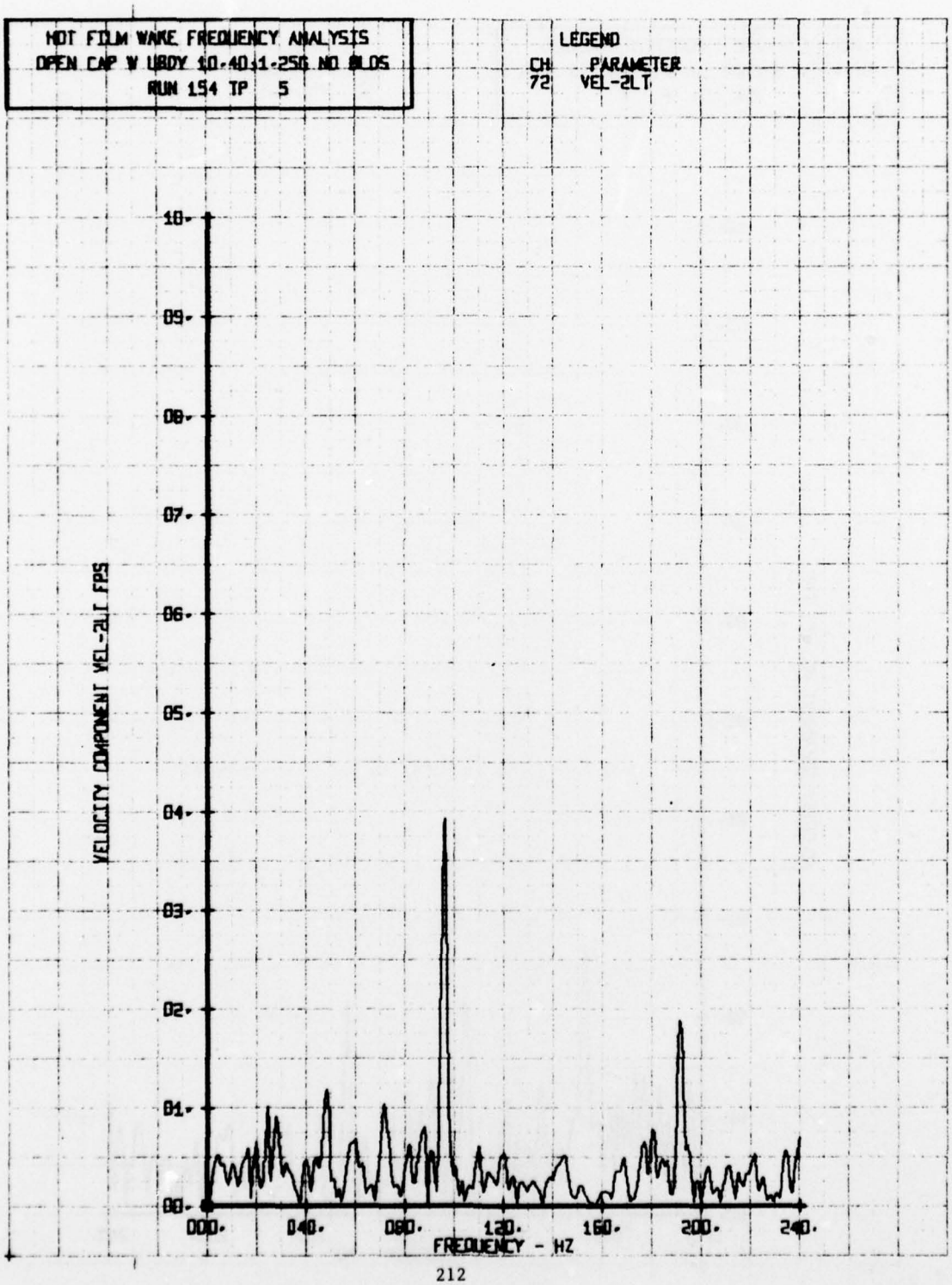
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40-1-25G NO BLDS
RUN 154 TP 5
LEGEND
CH PARAMETER
72 VEL-2LT
VELOCITY COMPONENT VEL-2LT FPS
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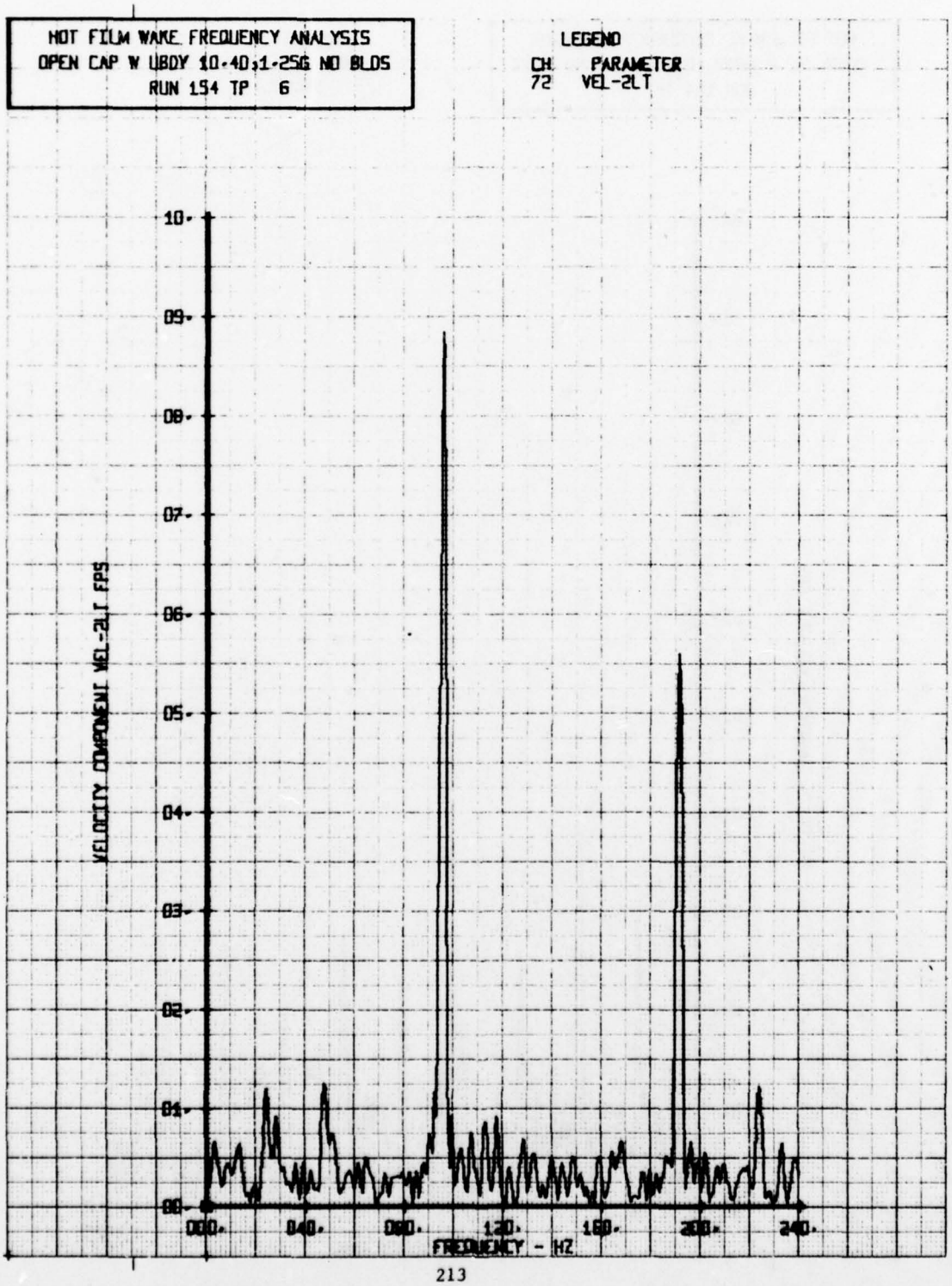
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40;1-25G NO BLDS
RUN 154 TP 6
LEGEND
CH PARAMETER
72 VEL-2LT
VELOCITY COMPONENT VEL-2LT FPS
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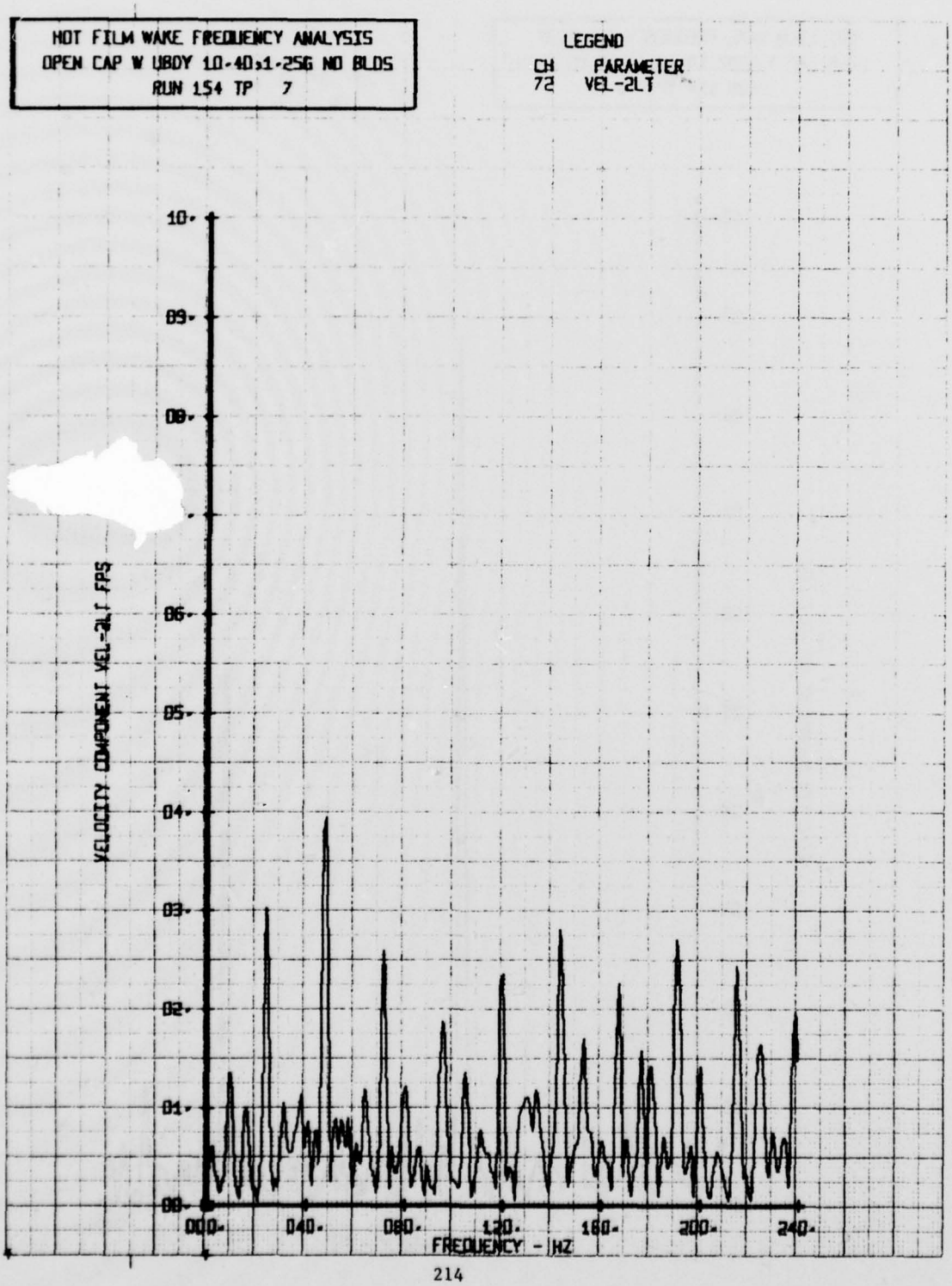
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLDS
RUN 154 TP 7
LEGEND
CH PARAMETER
72 VEL-2LT
VELOCITY COMPONENT VEL-2LT FPS
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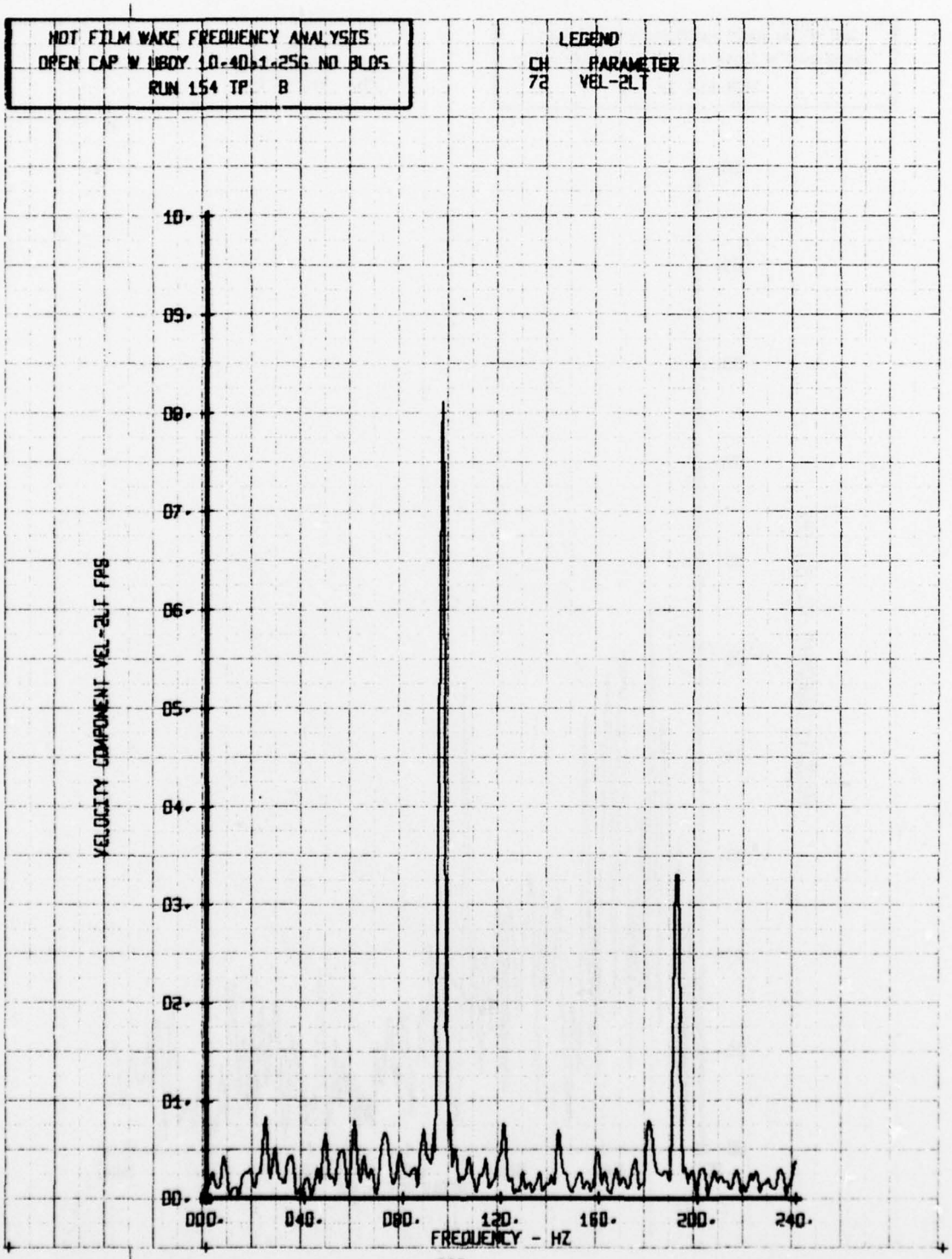
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBOY 1.0-40-1.25G NO BLDS
RUN 154 TP B
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-2LF FPS
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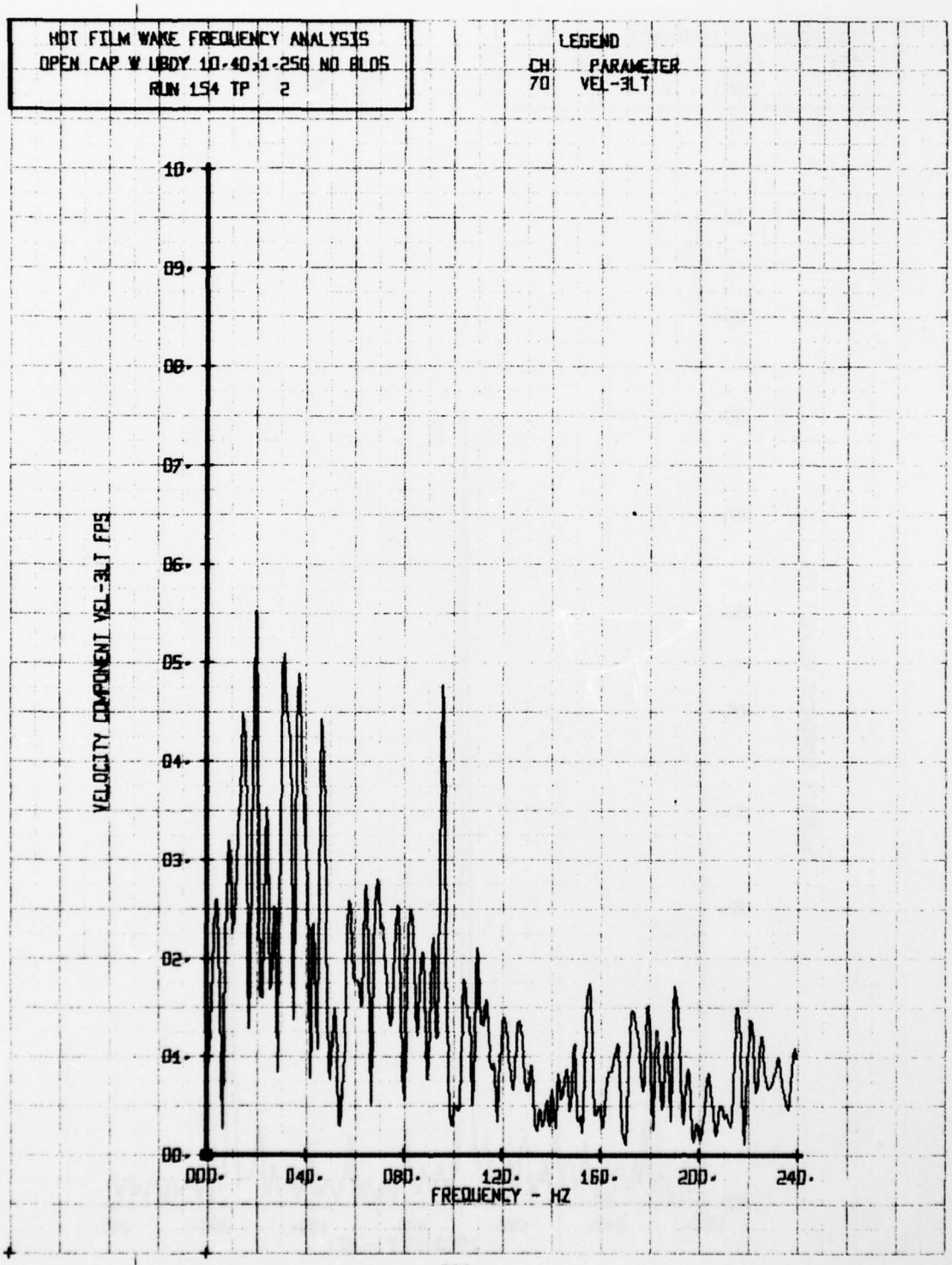
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBDY 10-40,1-250 NO BLOS
RUN 154 TP 2
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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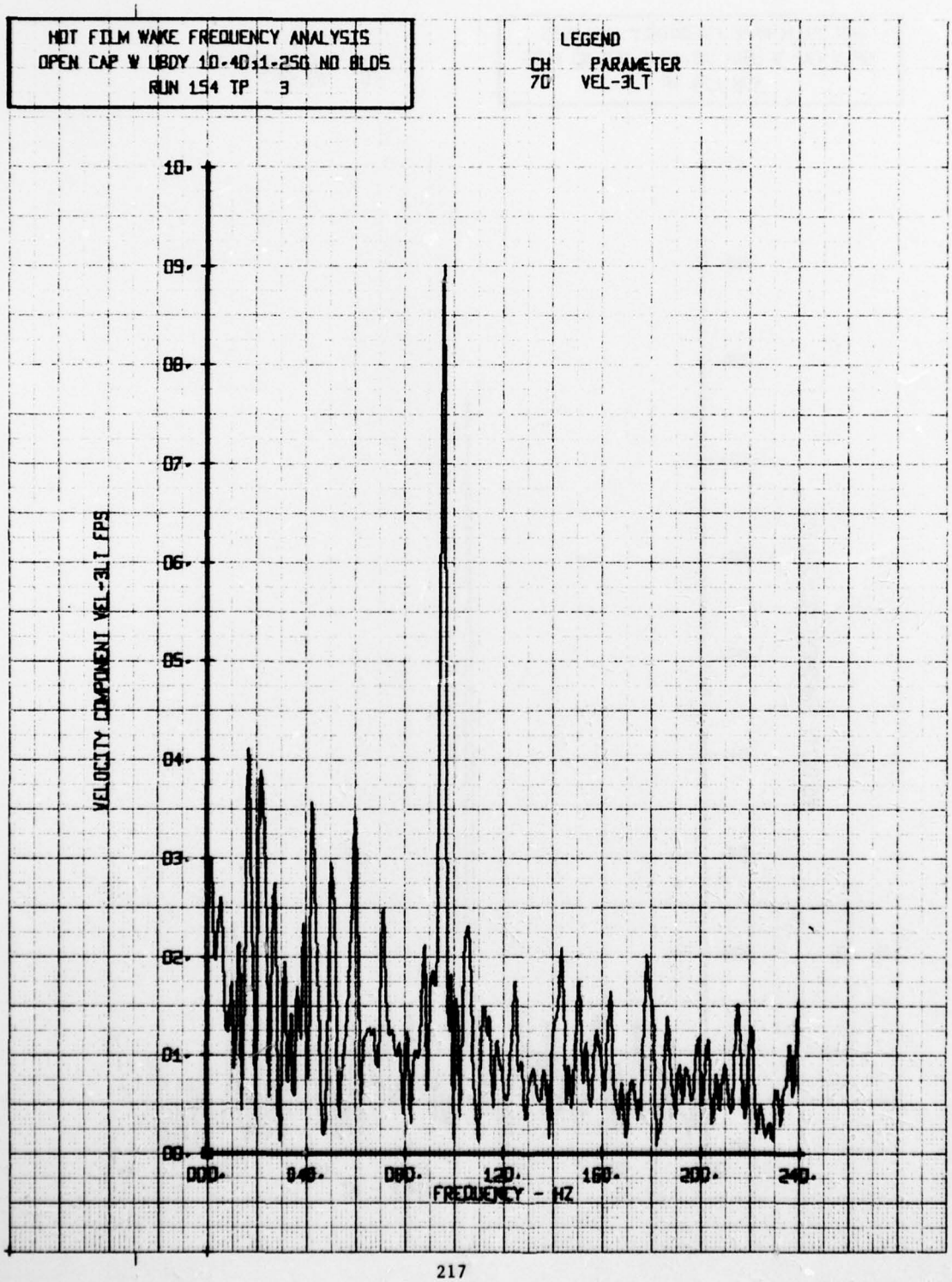
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40;1-25G NO BLDS
RUN 154 TP 3
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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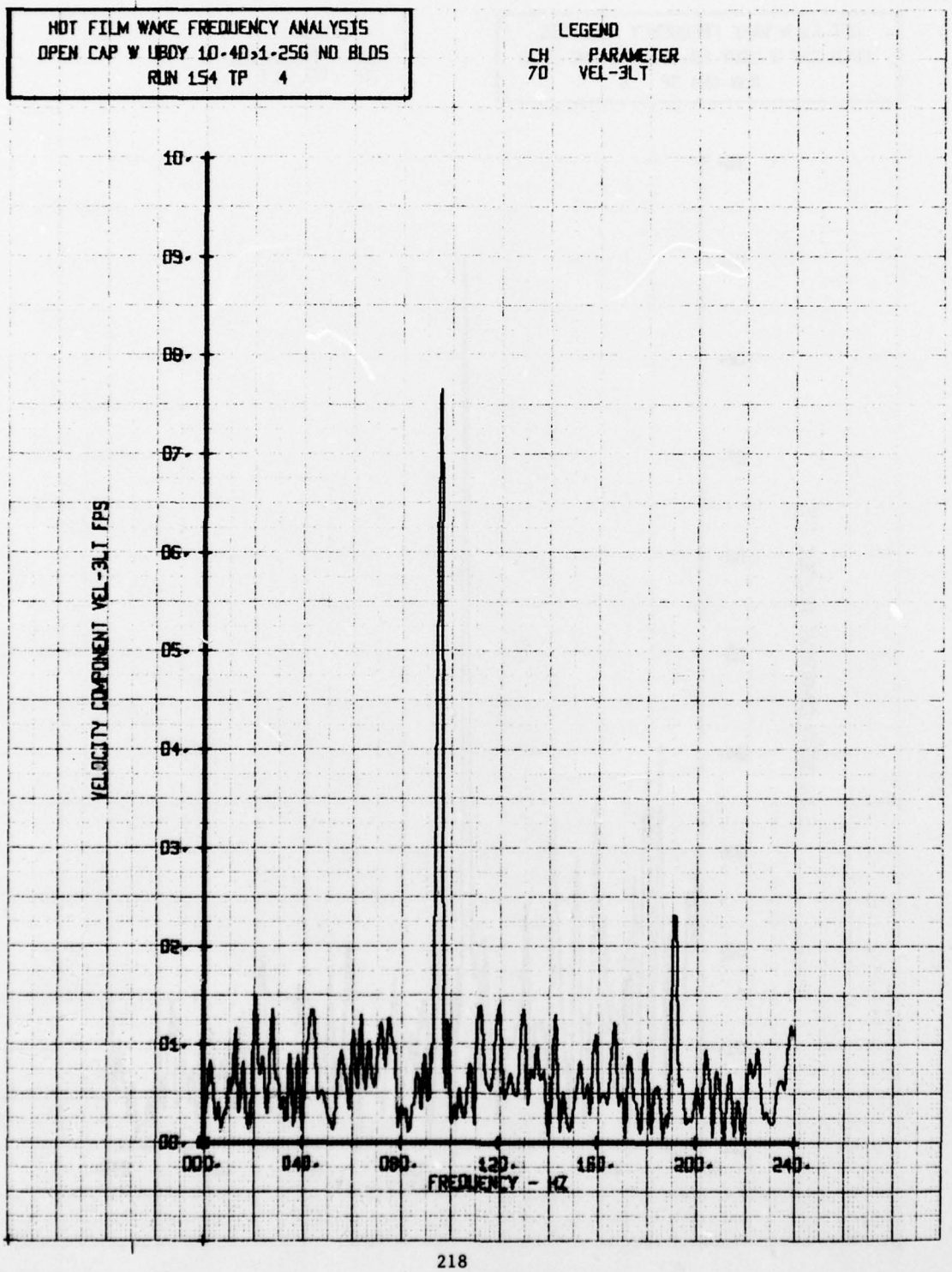
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLDS
RUN 154 TP 4
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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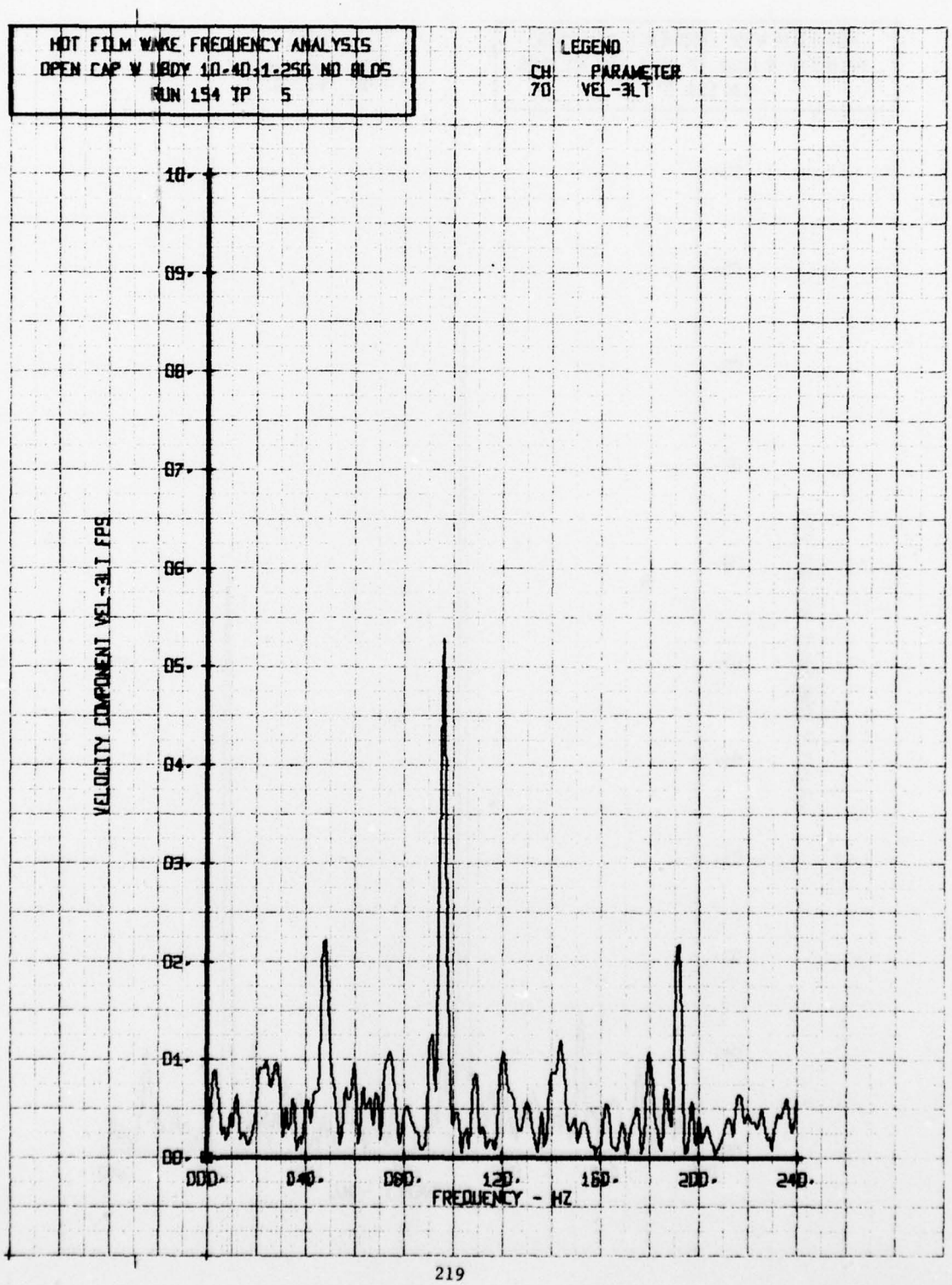
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40-1-250 NO BLDS
RUN 154 TP 5
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-3LT FPS
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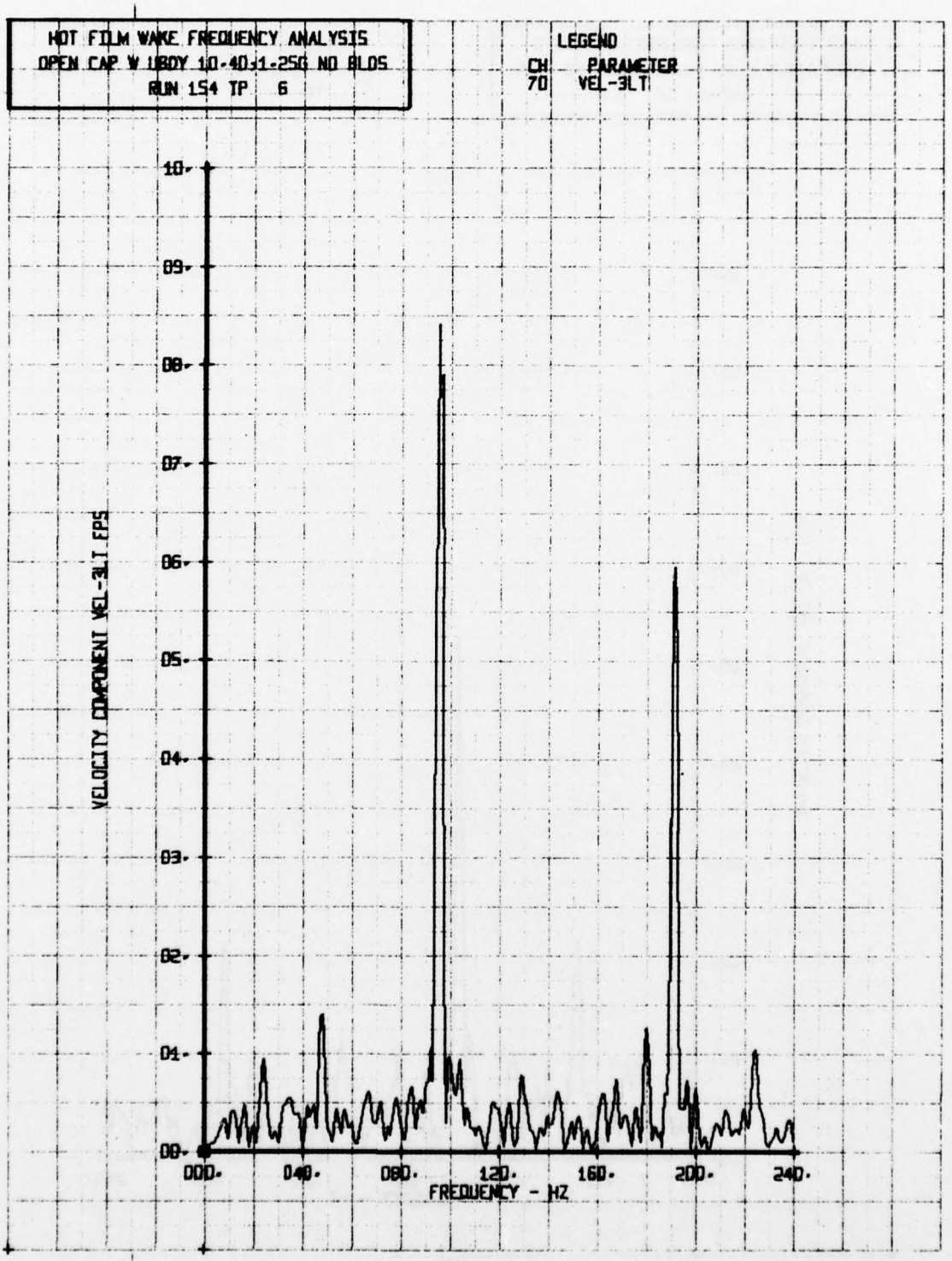
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W LBODY 10-40-1-25G NO BLDS
RUN 154 TP 6
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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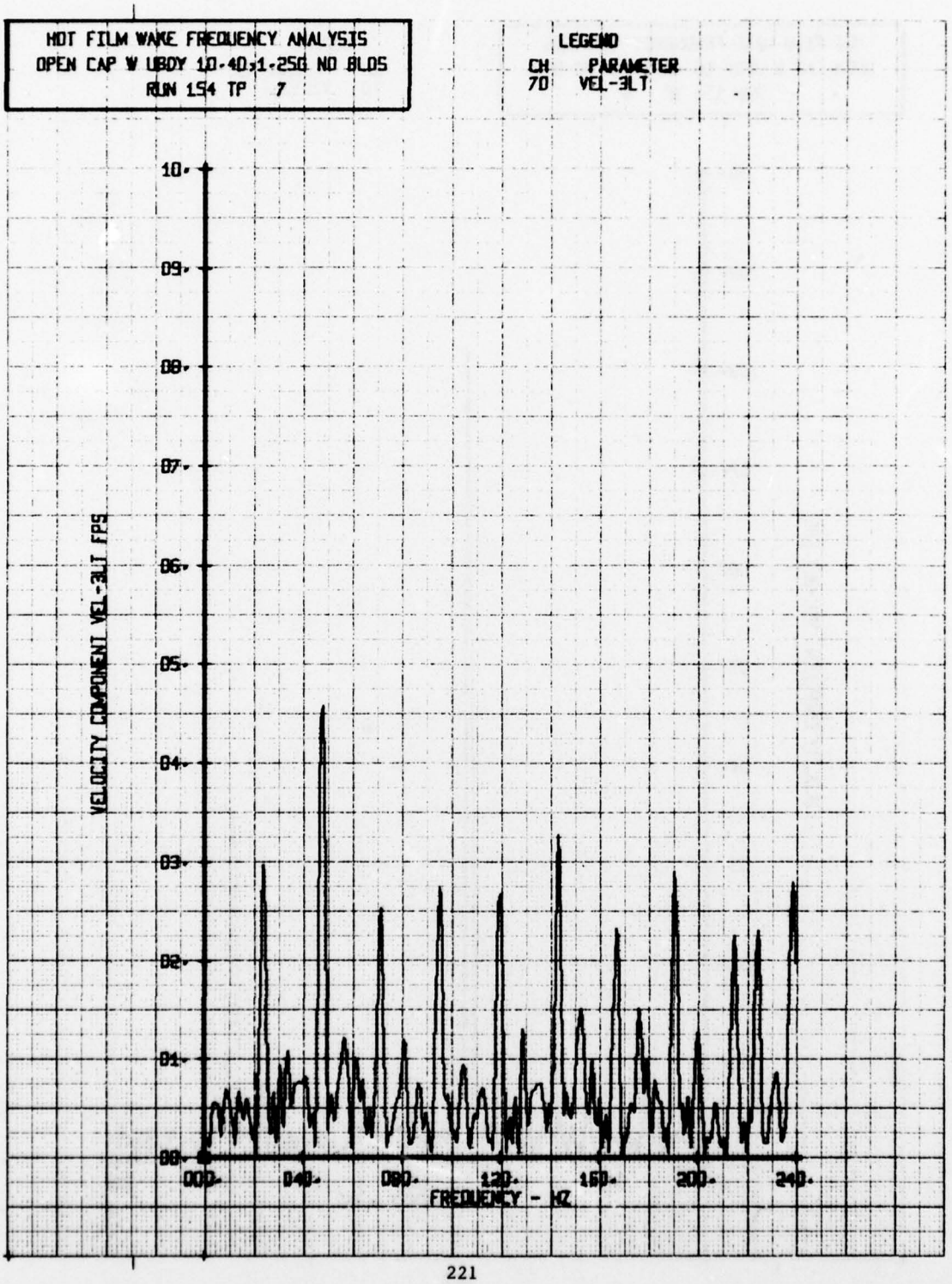
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLDS
RUN 154 TP 7
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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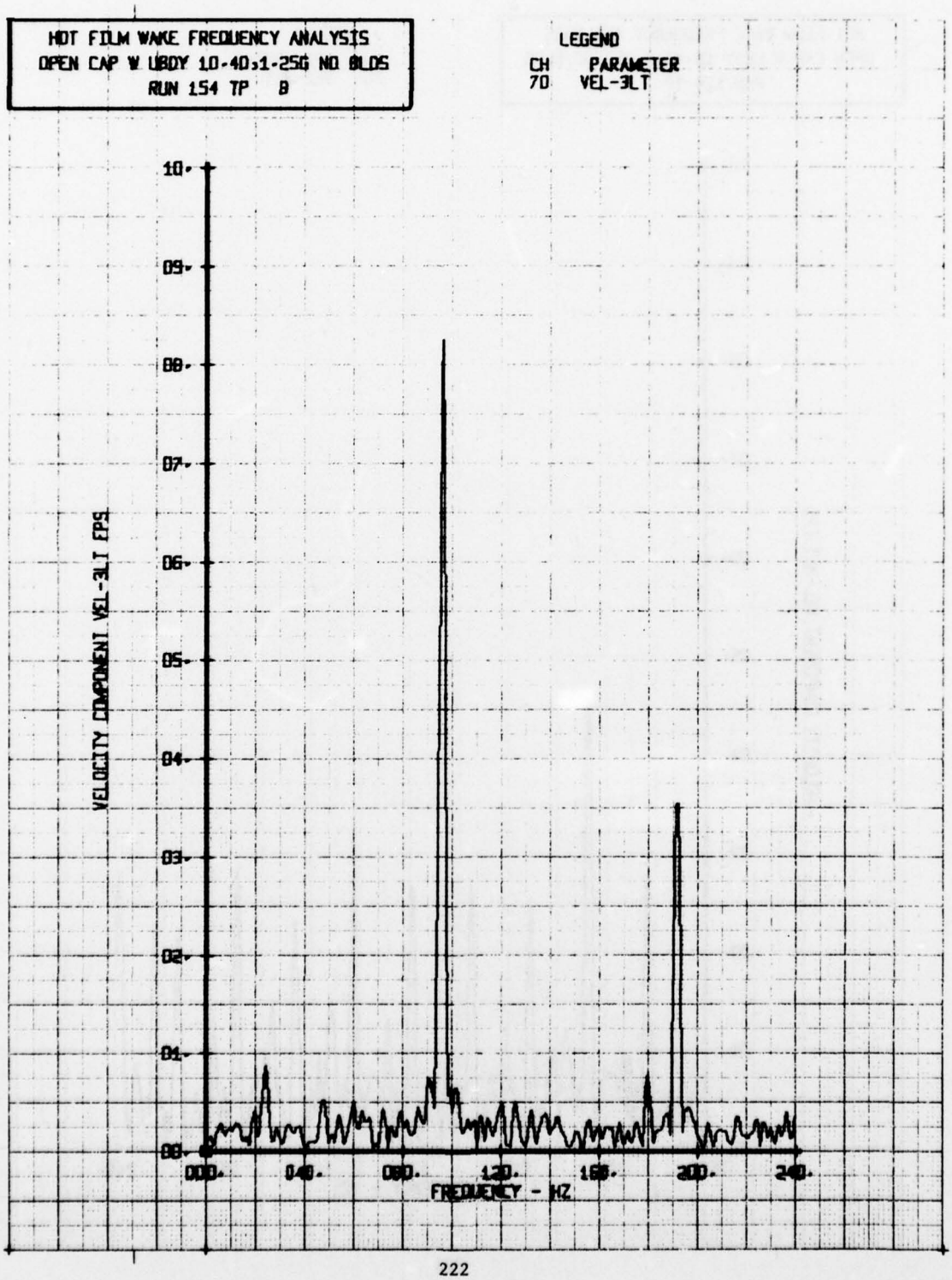
HOT FILM WAKE FREQUENCY ANALYSIS
OPEN CAP W UBDY 10-40,1-25G NO BLDS
RUN 154 TP B
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-3LT FPS
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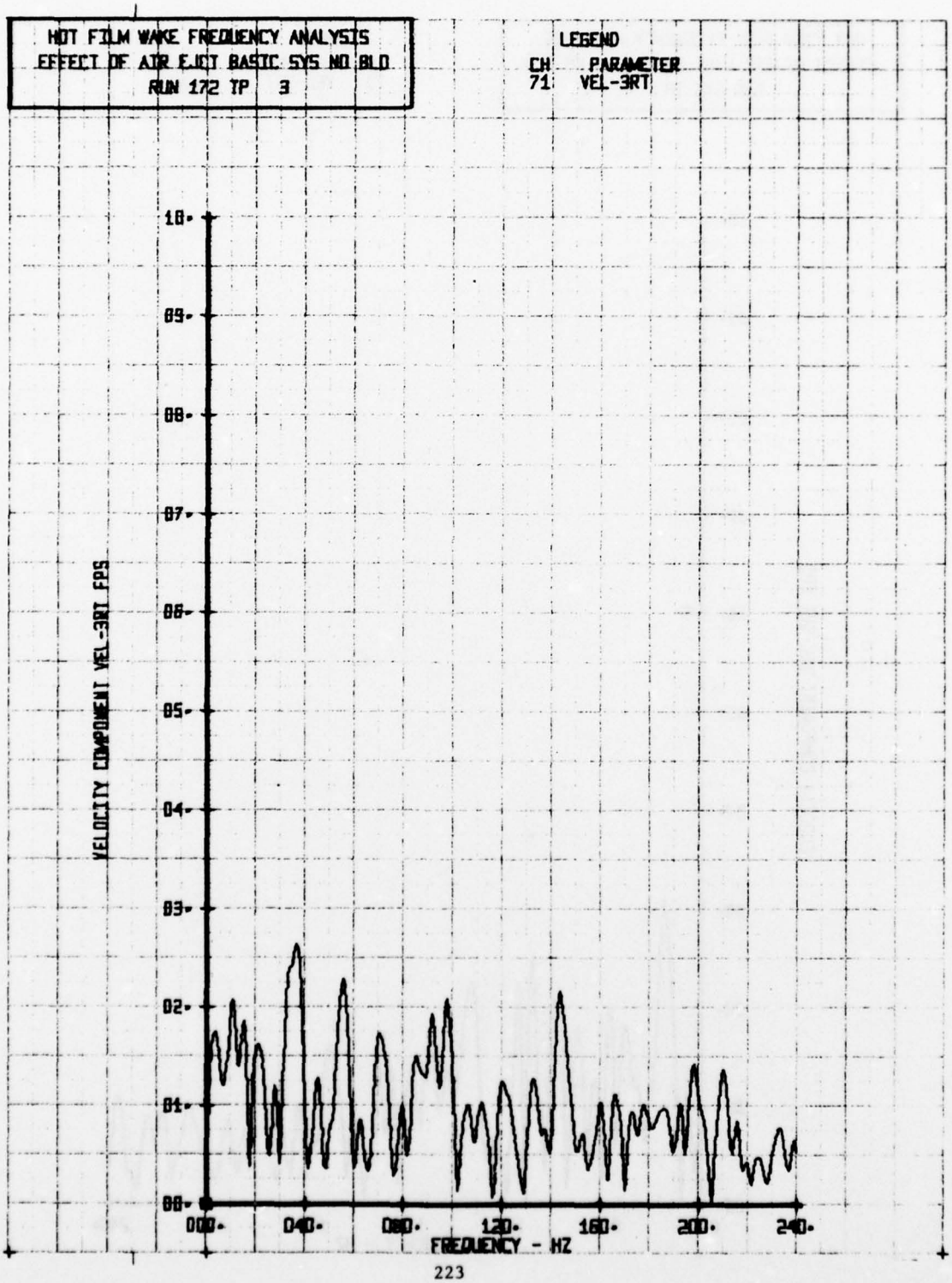
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 3
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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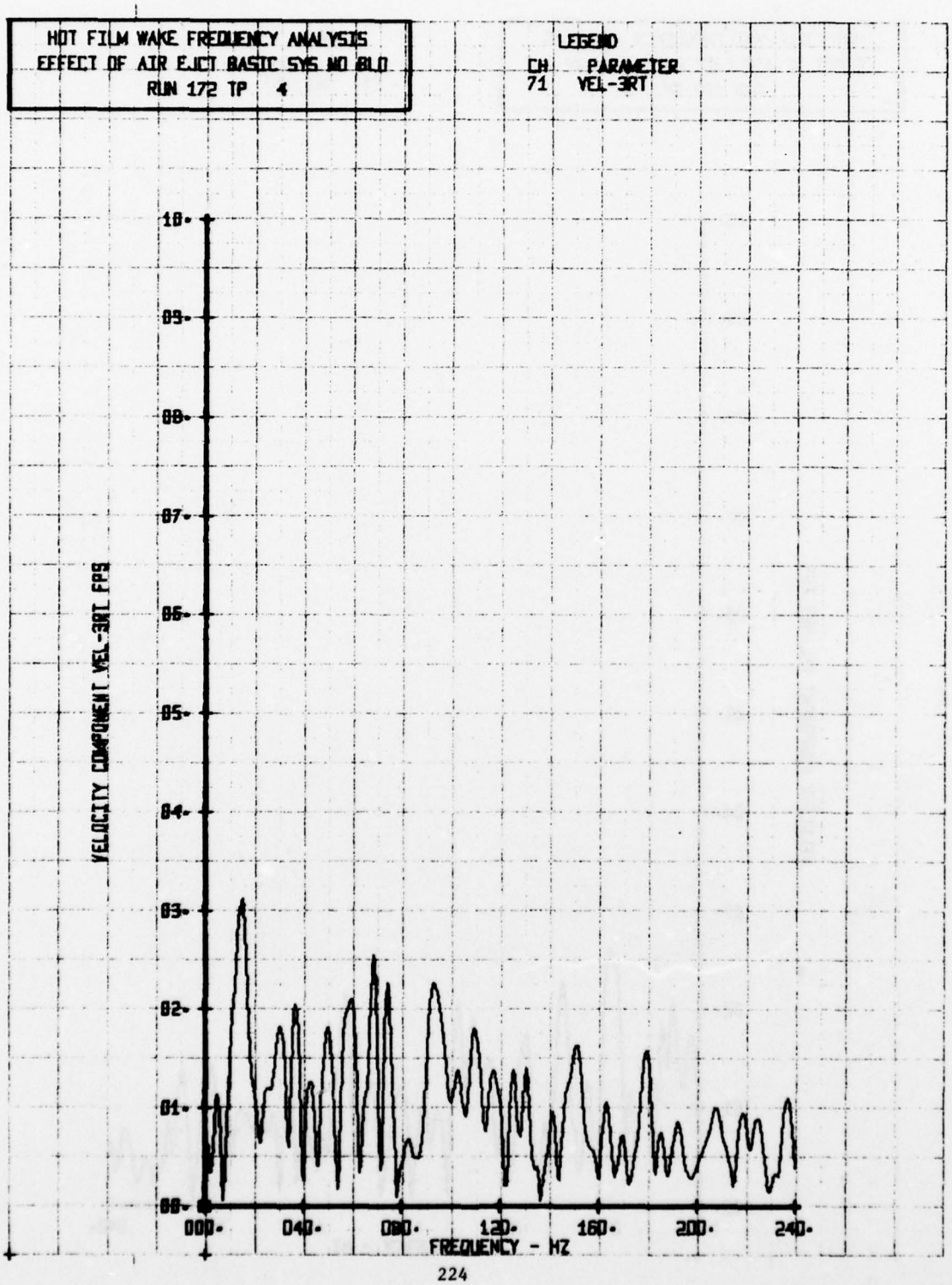
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 4
LEGEND
CH PARAMETER
71 VEL-3RT
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VELOCITY COMPONENT VEL-3RT FPS
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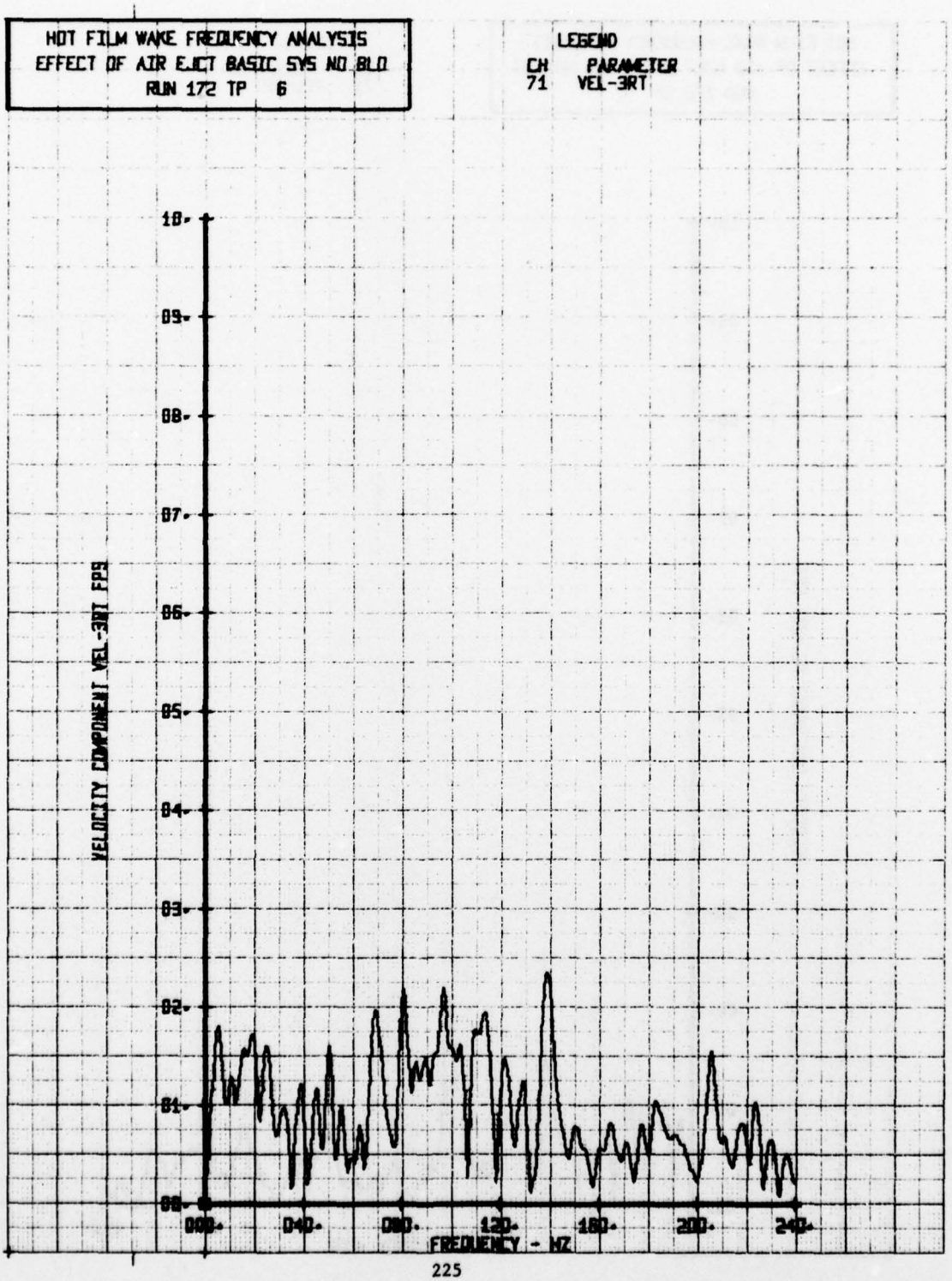
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 6
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-3RT FPS
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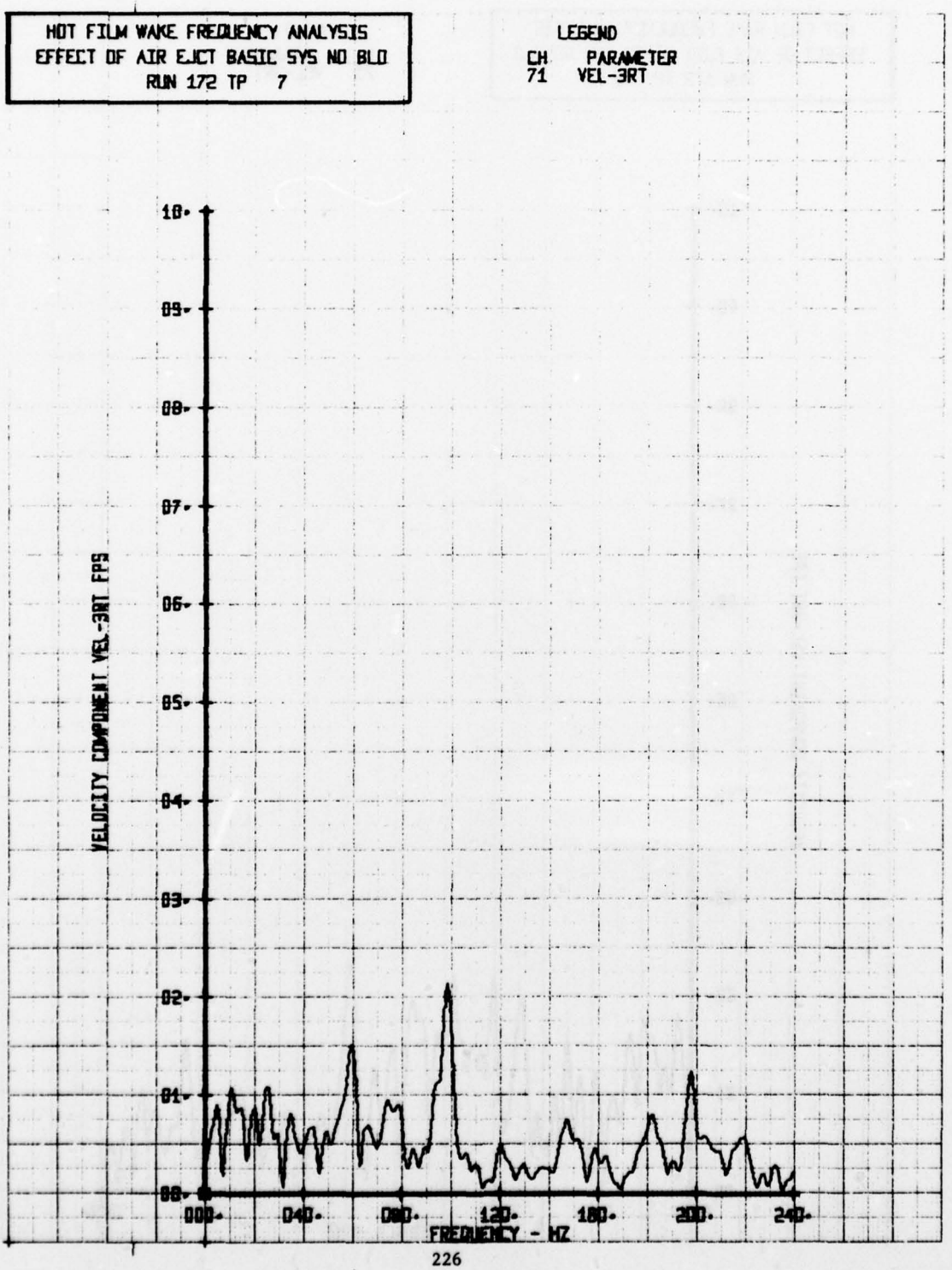
HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 7
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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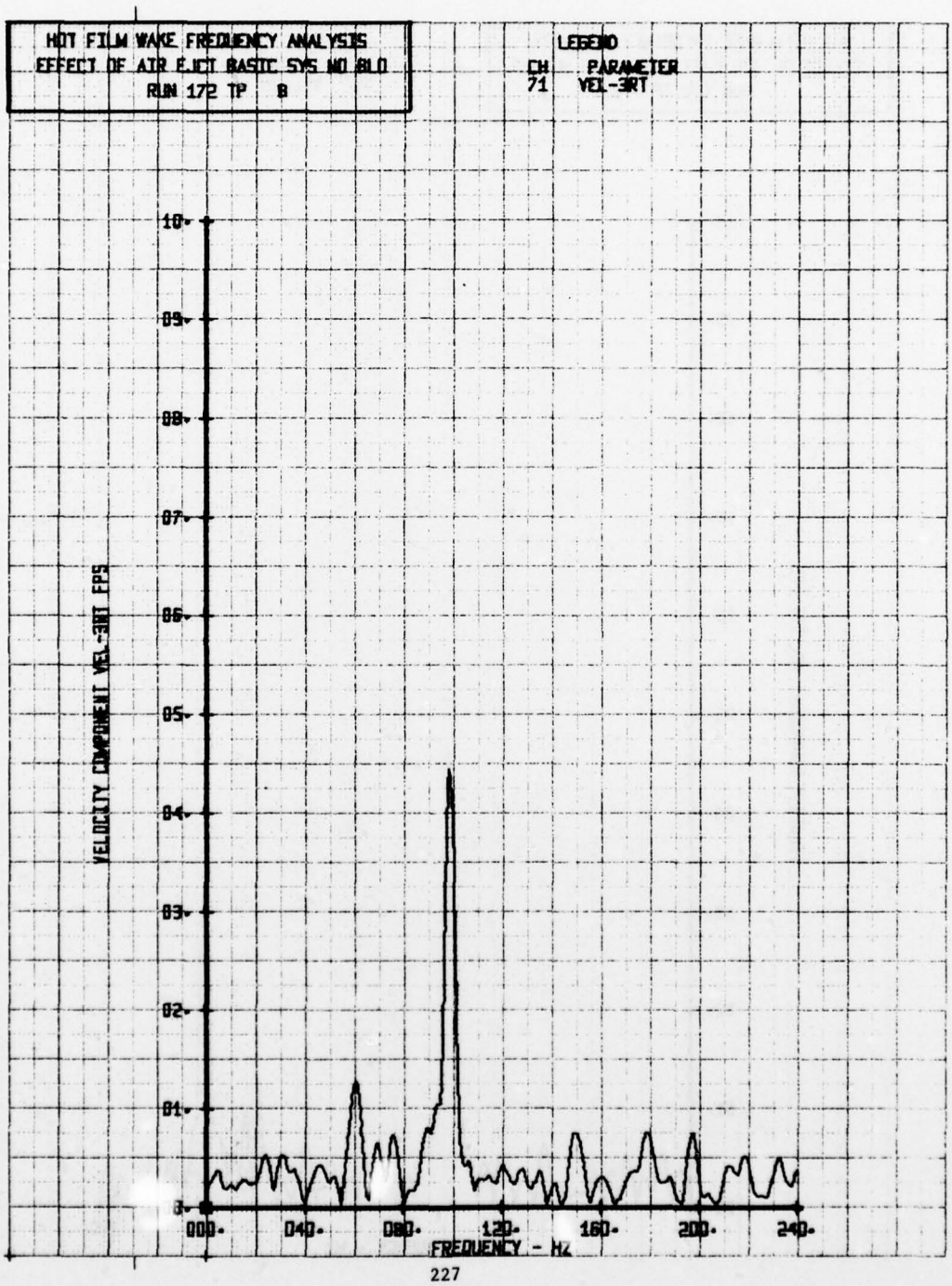
HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 8
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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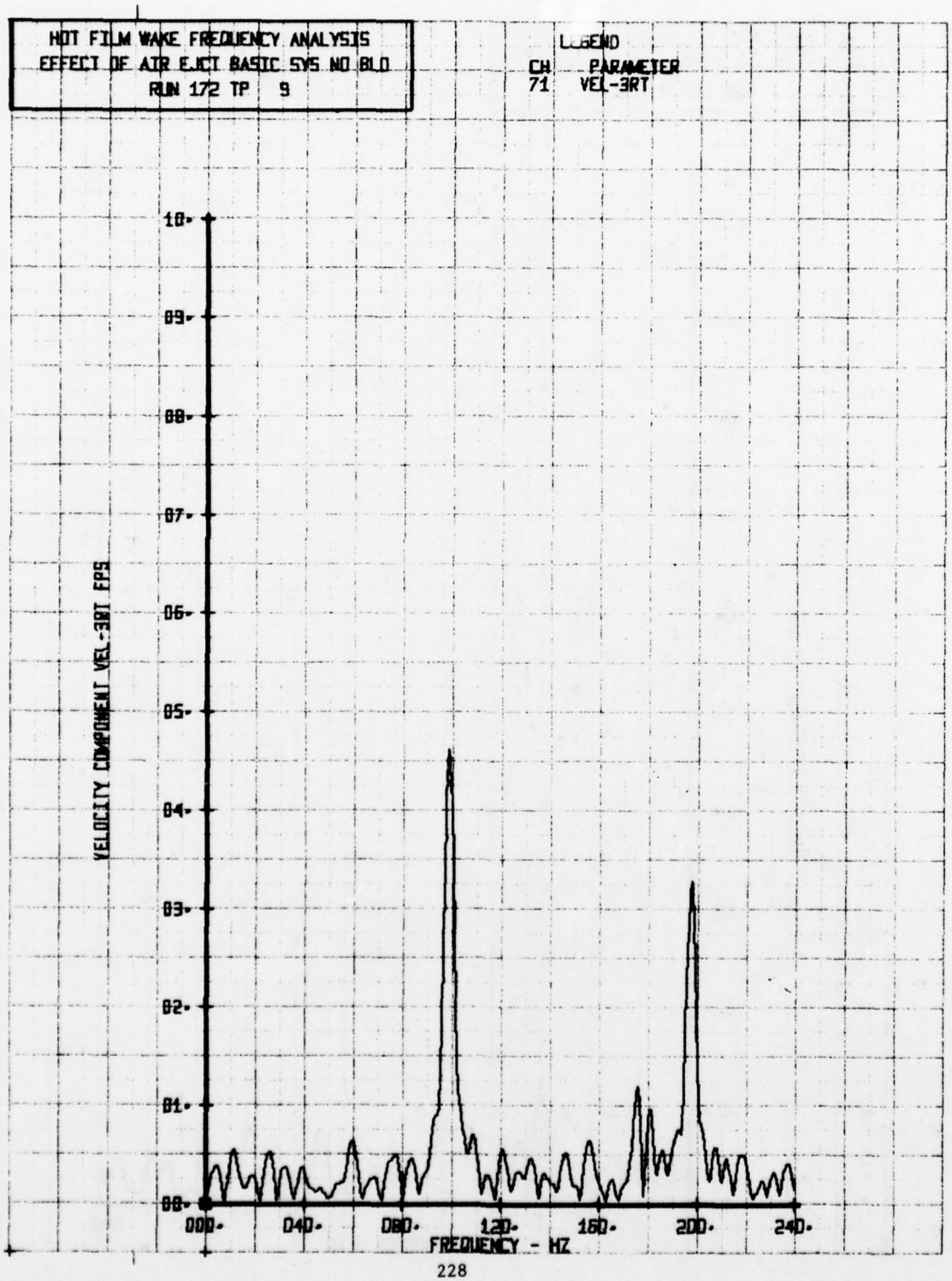
HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 9
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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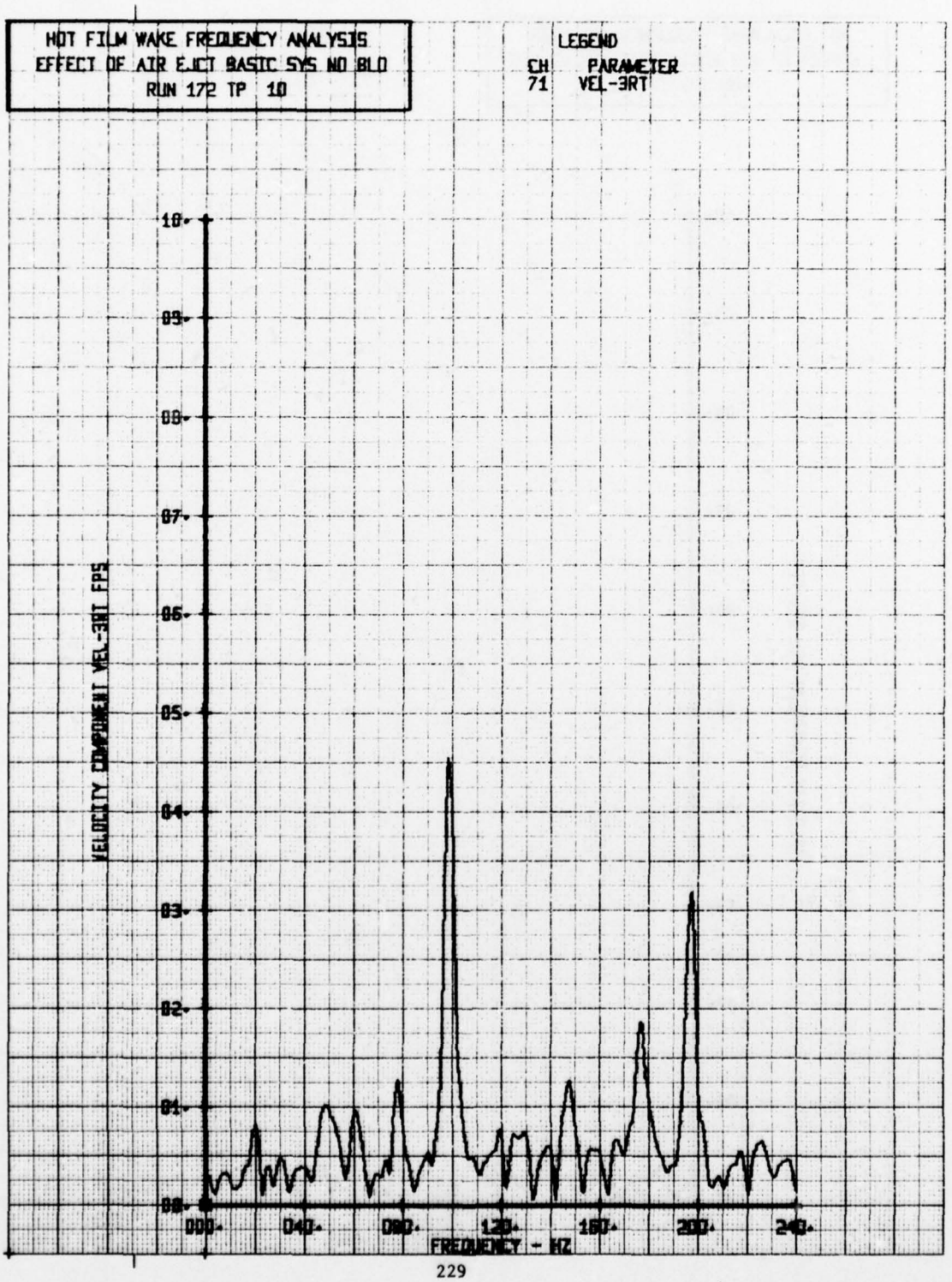
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 10
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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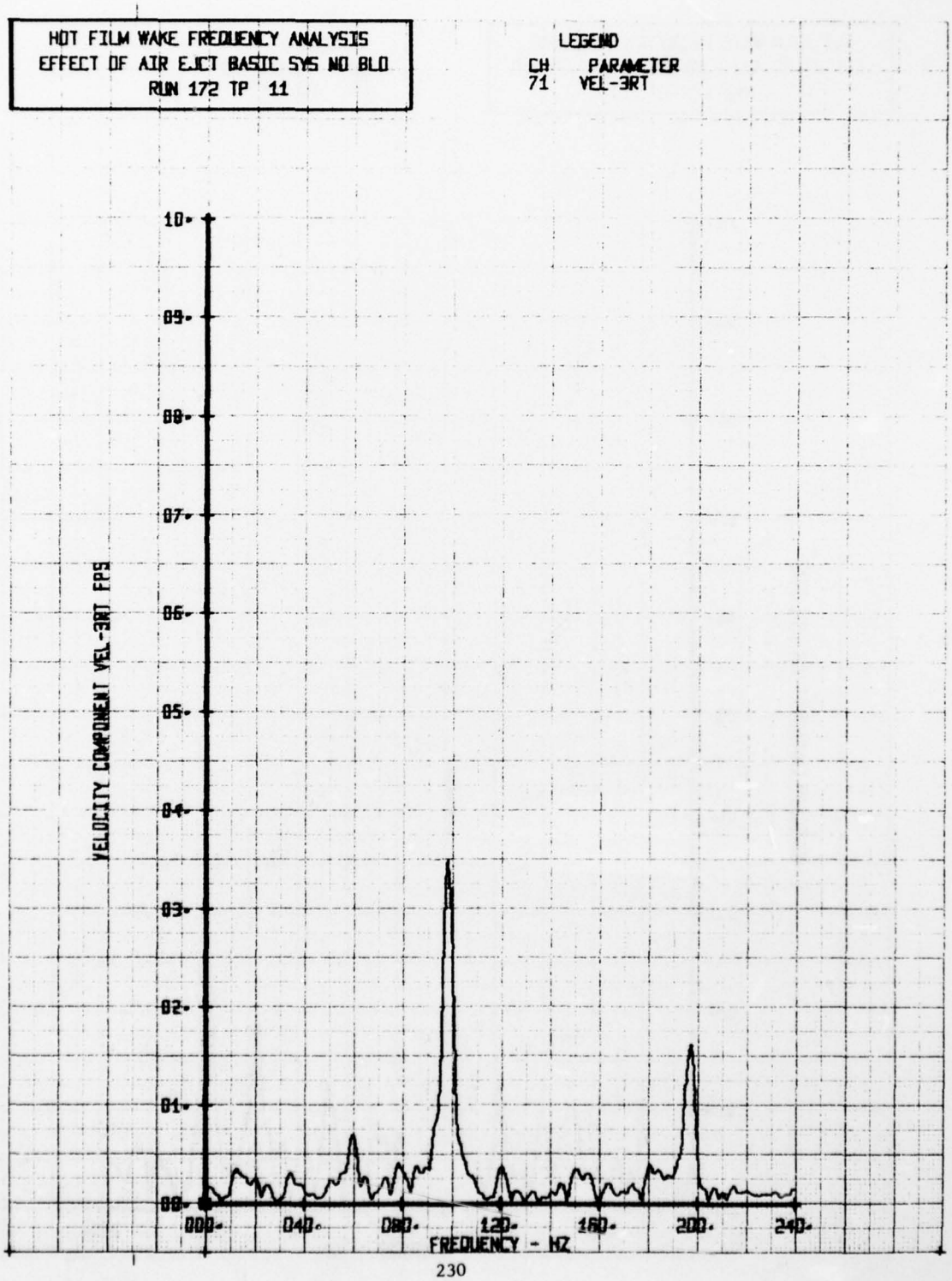
FREQUENCY - HZ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EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 11
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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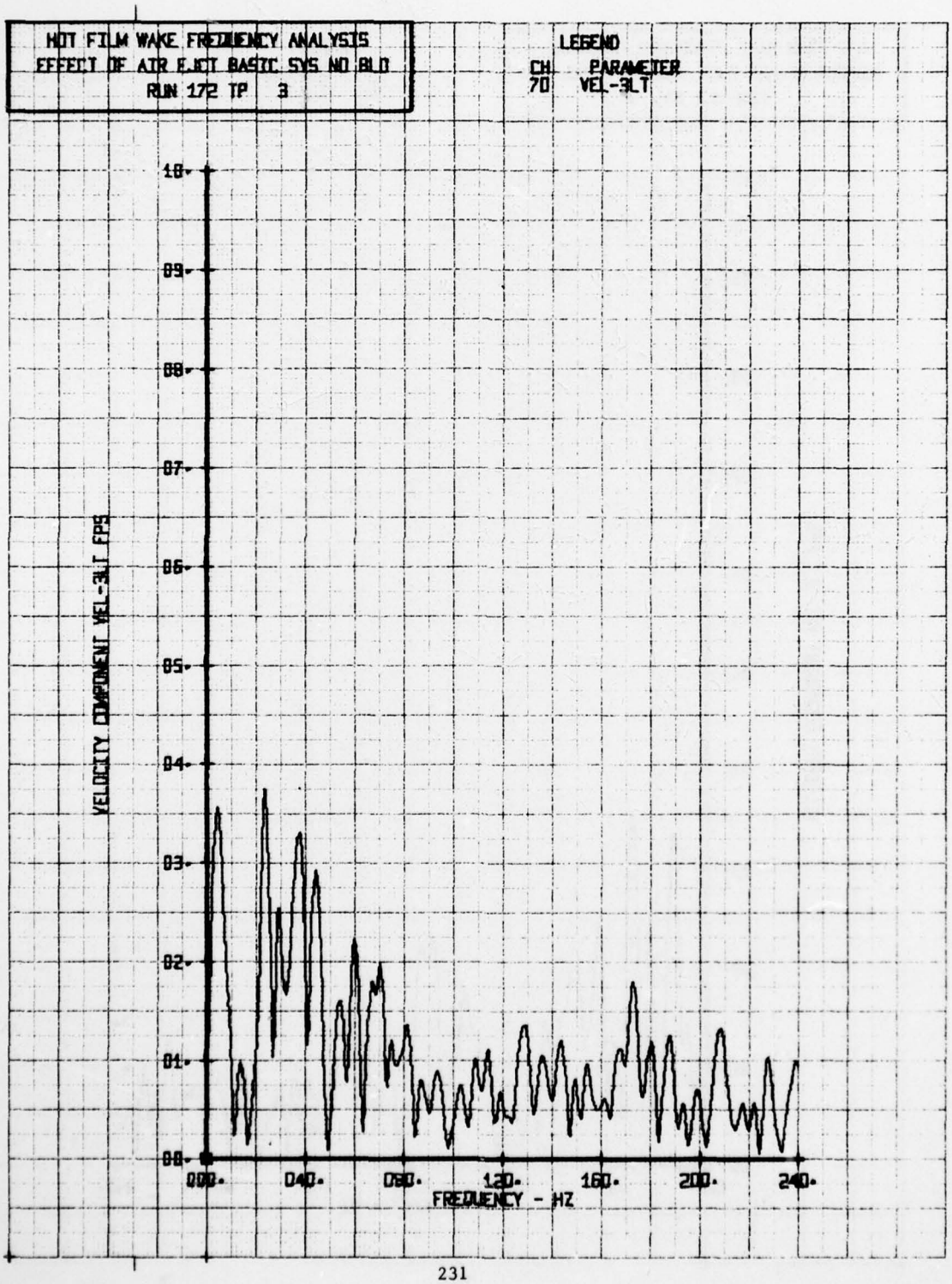
FREQUENCY - HZ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EFFECT OF AIR EJCT BASIC SYS NO BLD
RUN 172 TP 3
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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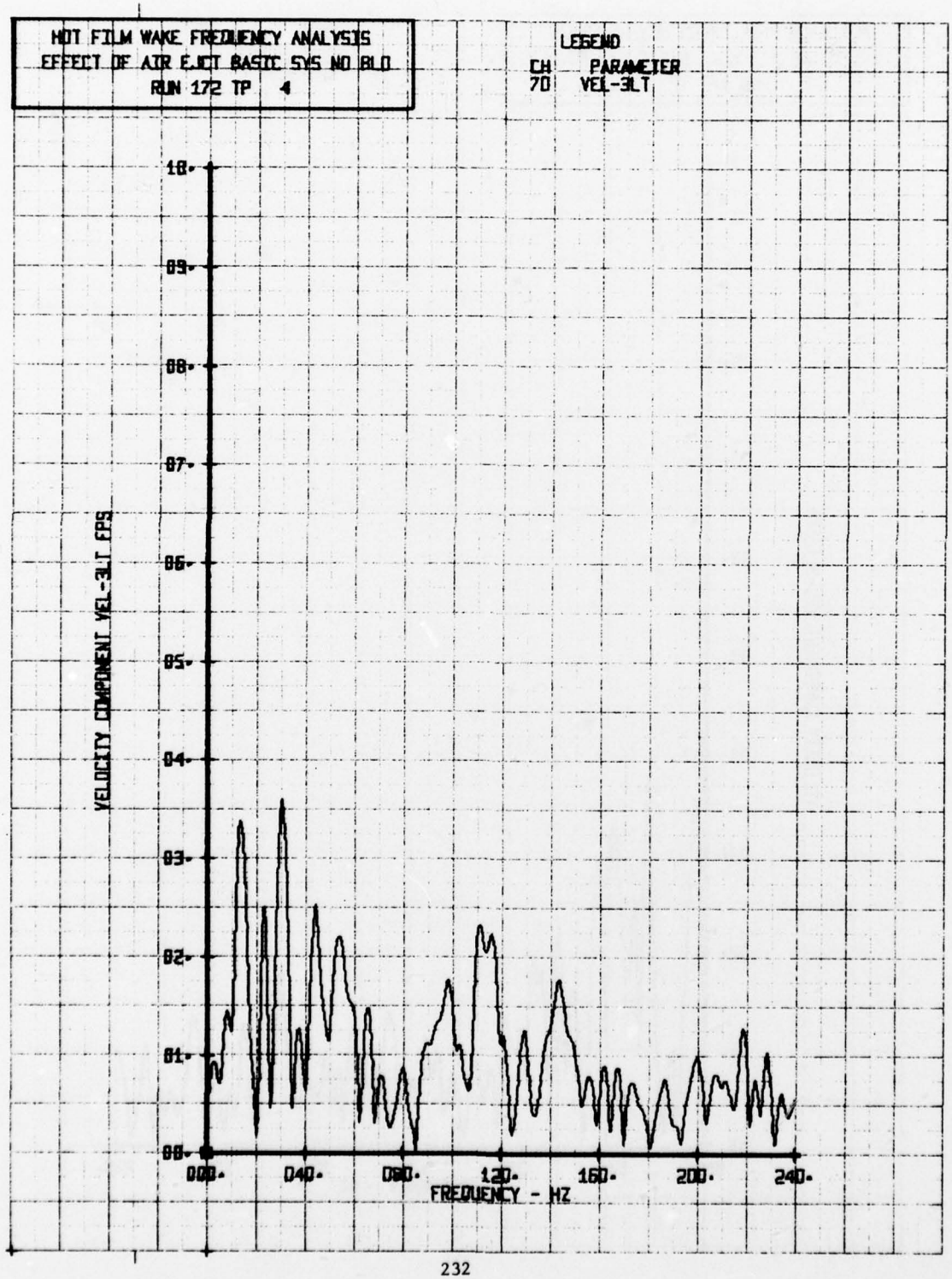
HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 4
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-3LT FPS
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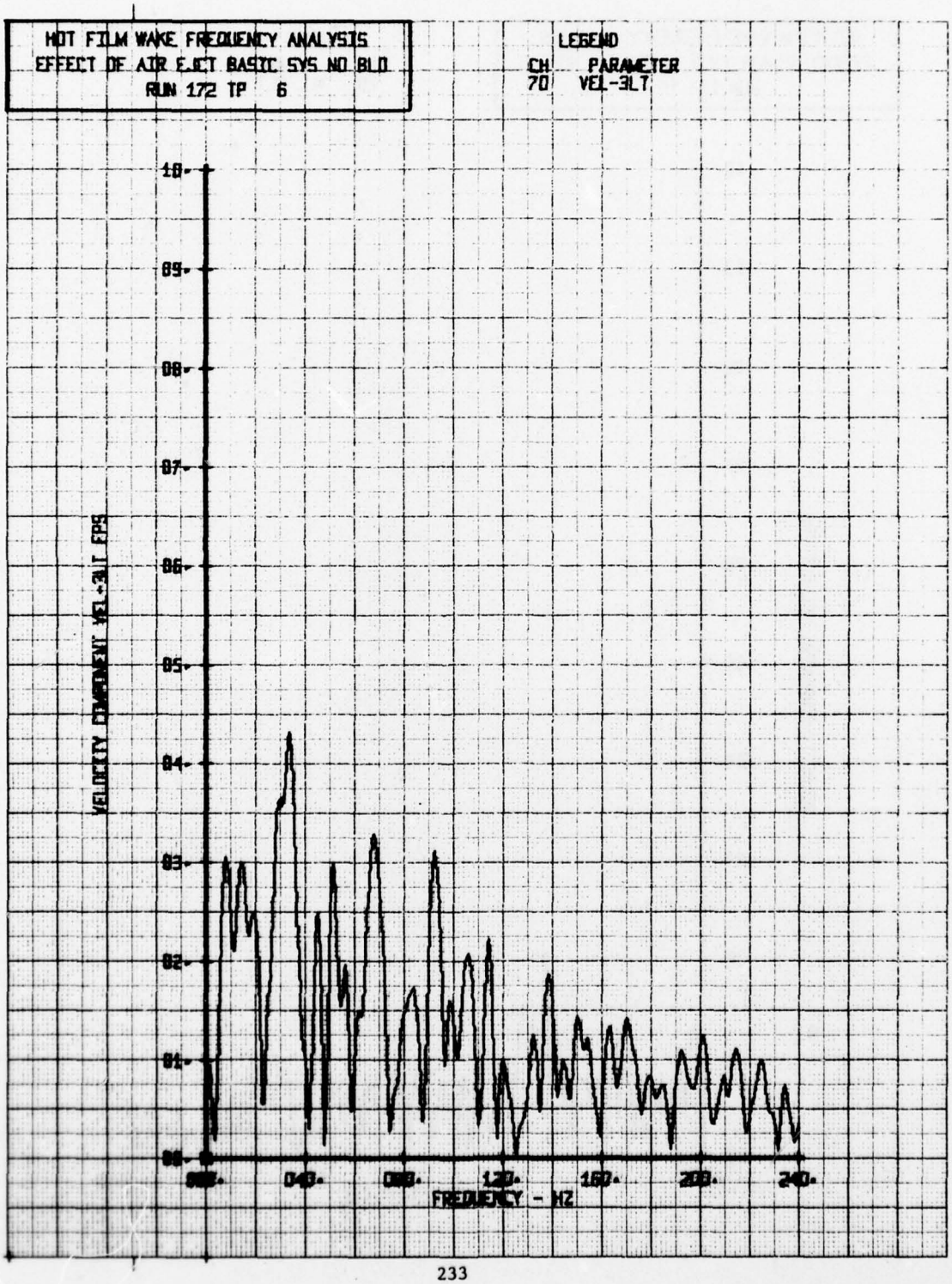
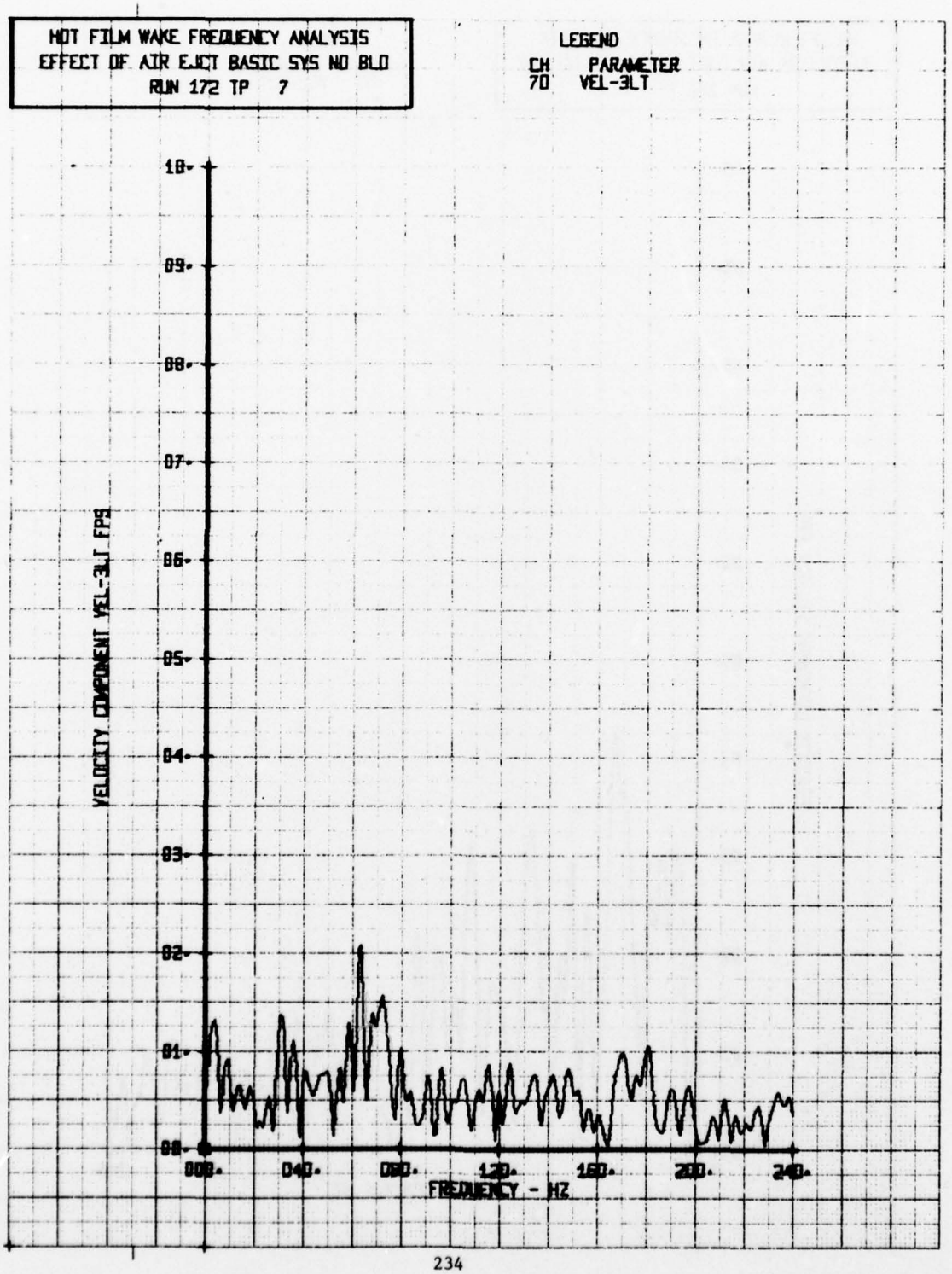
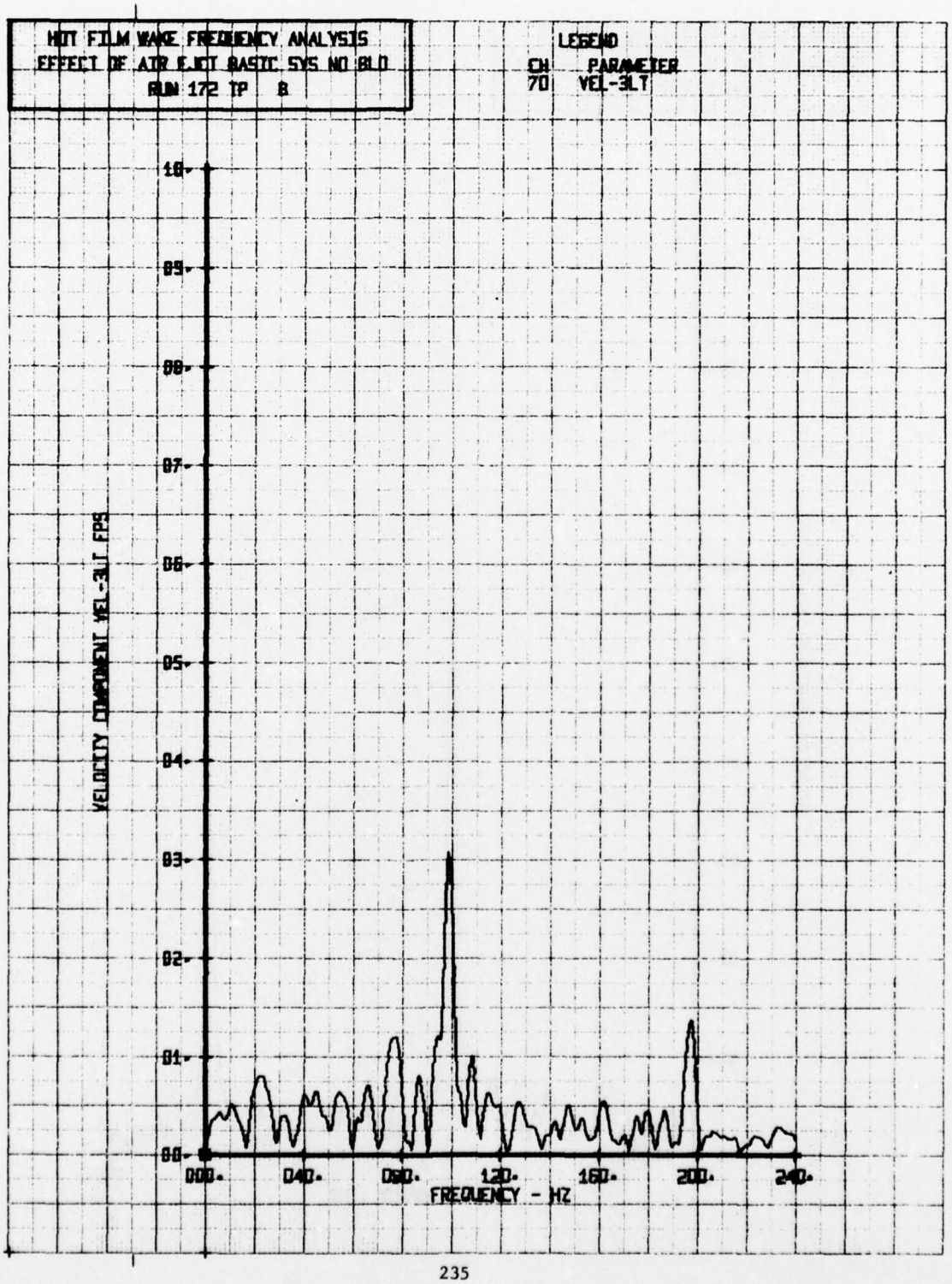

HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 6
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 7
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 8
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VEL-3LT FPS
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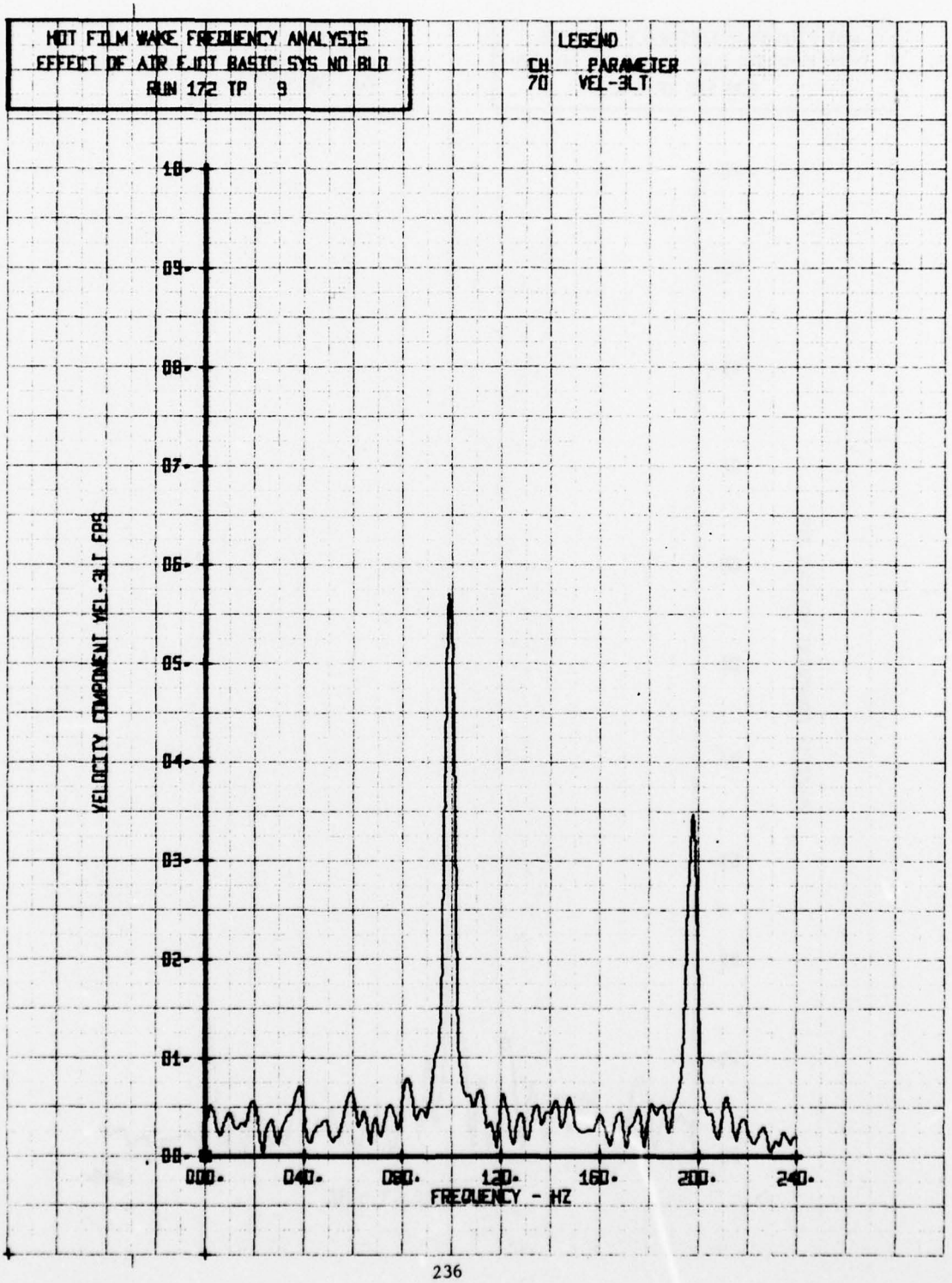
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 9
LEGEND
CH PARAMETER
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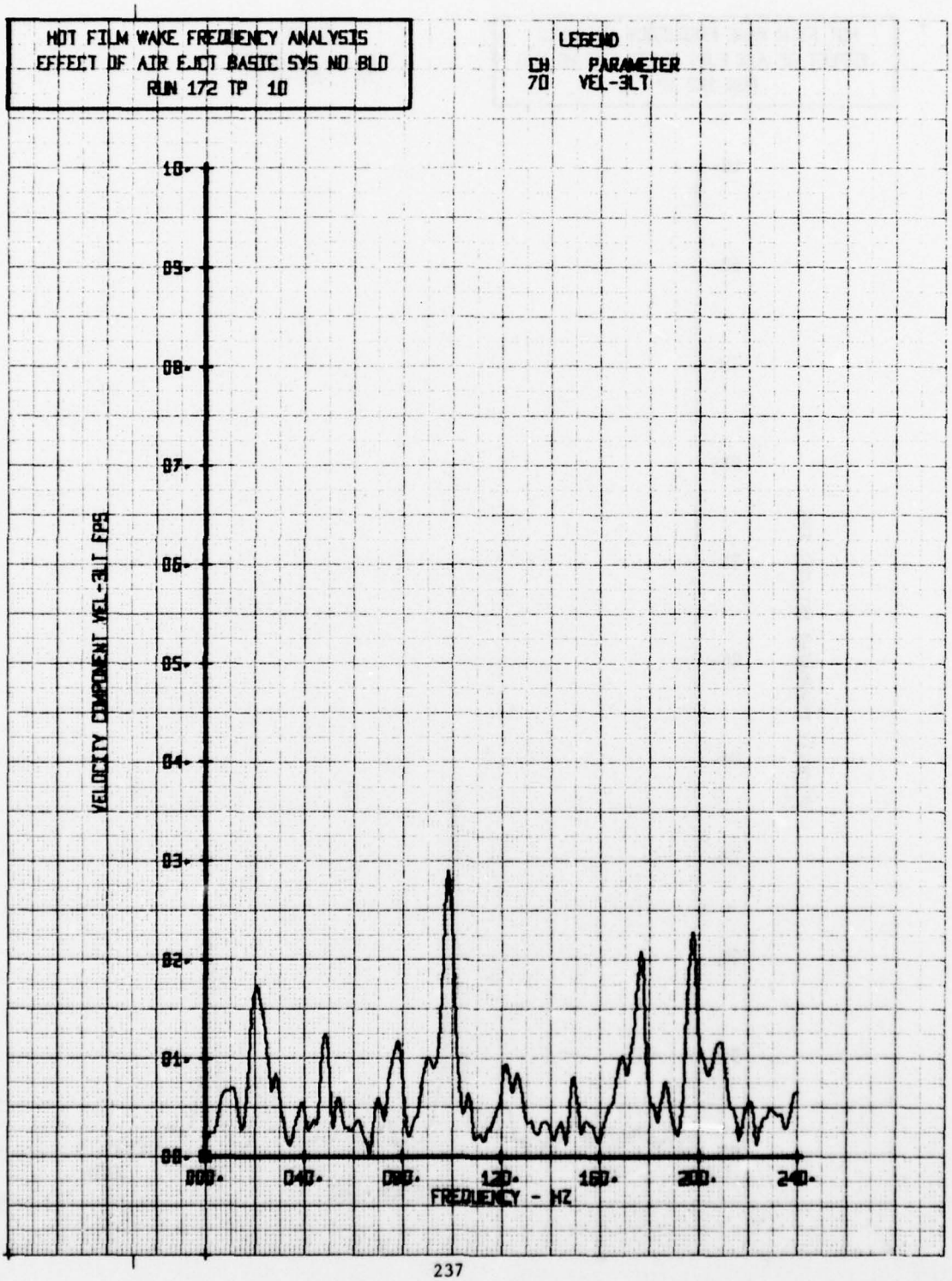
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 10
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VELOCITY COMPONENT VEL-3LT FPS
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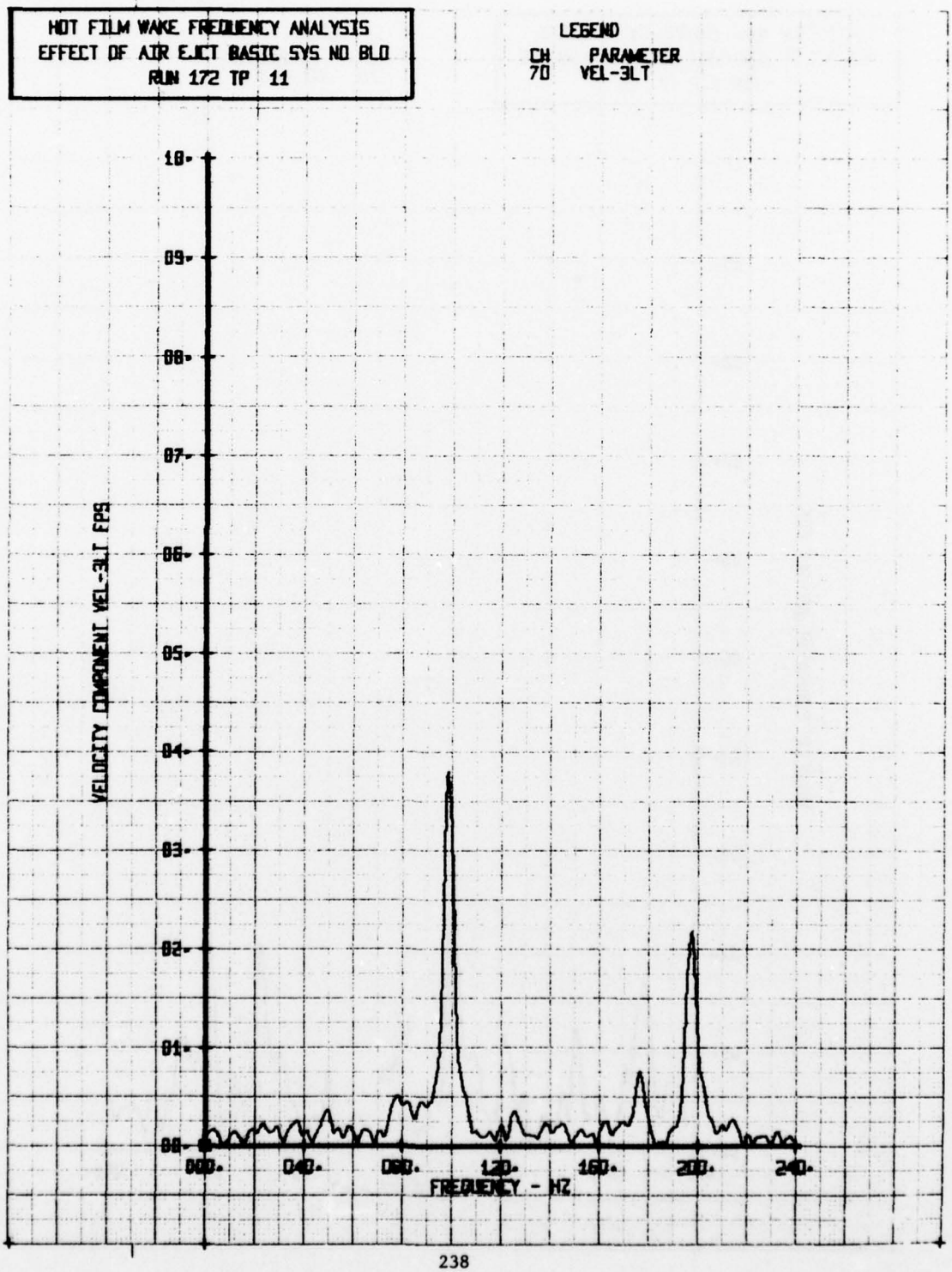
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS NO BLO
RUN 172 TP 11
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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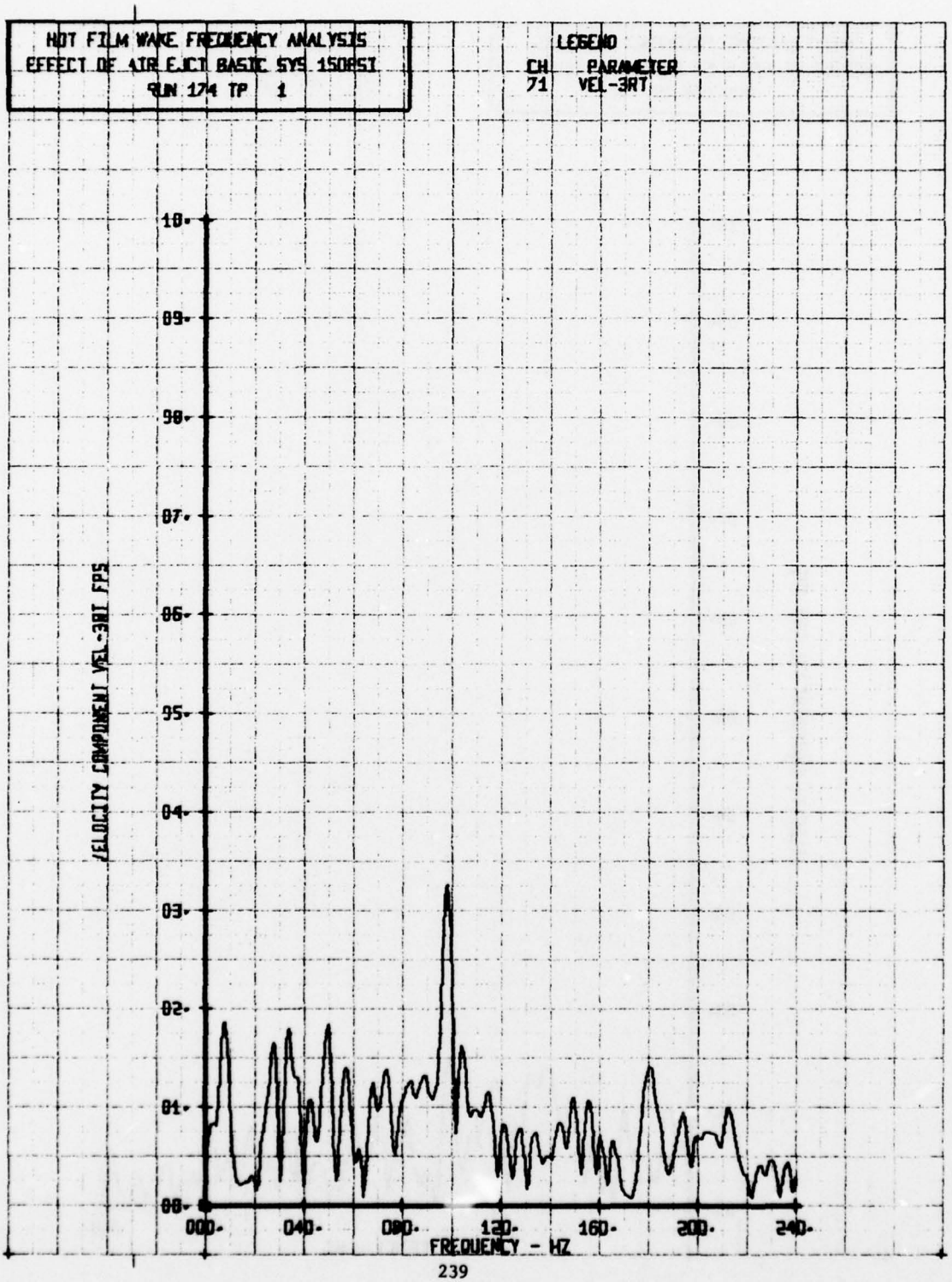
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS 150PSI
RUN 174 TP 1
LEGEND
CH PARAMETER
71 VEL-3RT
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VELOCITY COMPONENT VEL-3RT FPS
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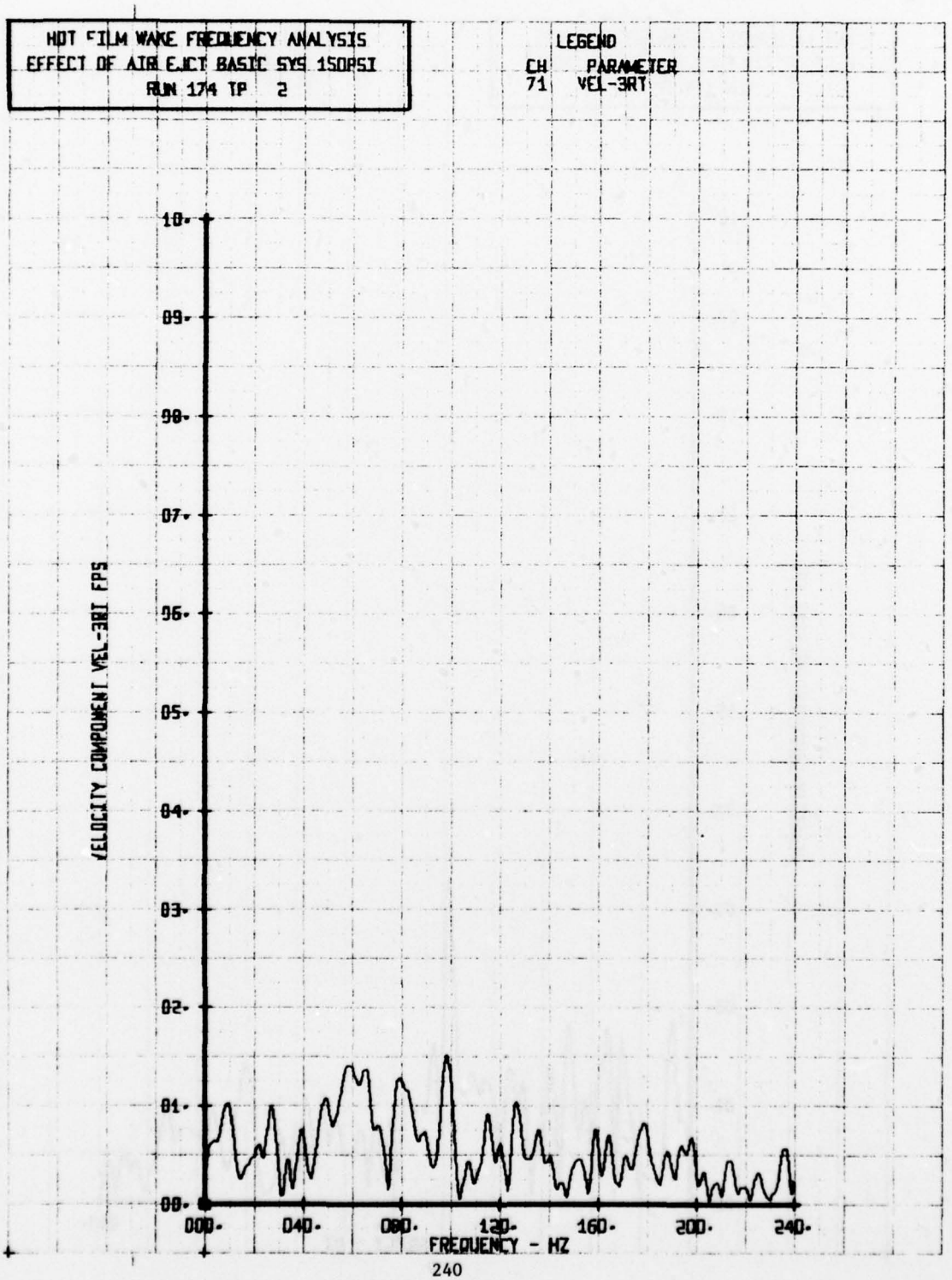
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS 150PSI
RUN 174 TP 2
LEGEND
CH PARAMETER
71 VEL-3RT
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VELOCITY COMPONENT VEL-3RT FPS
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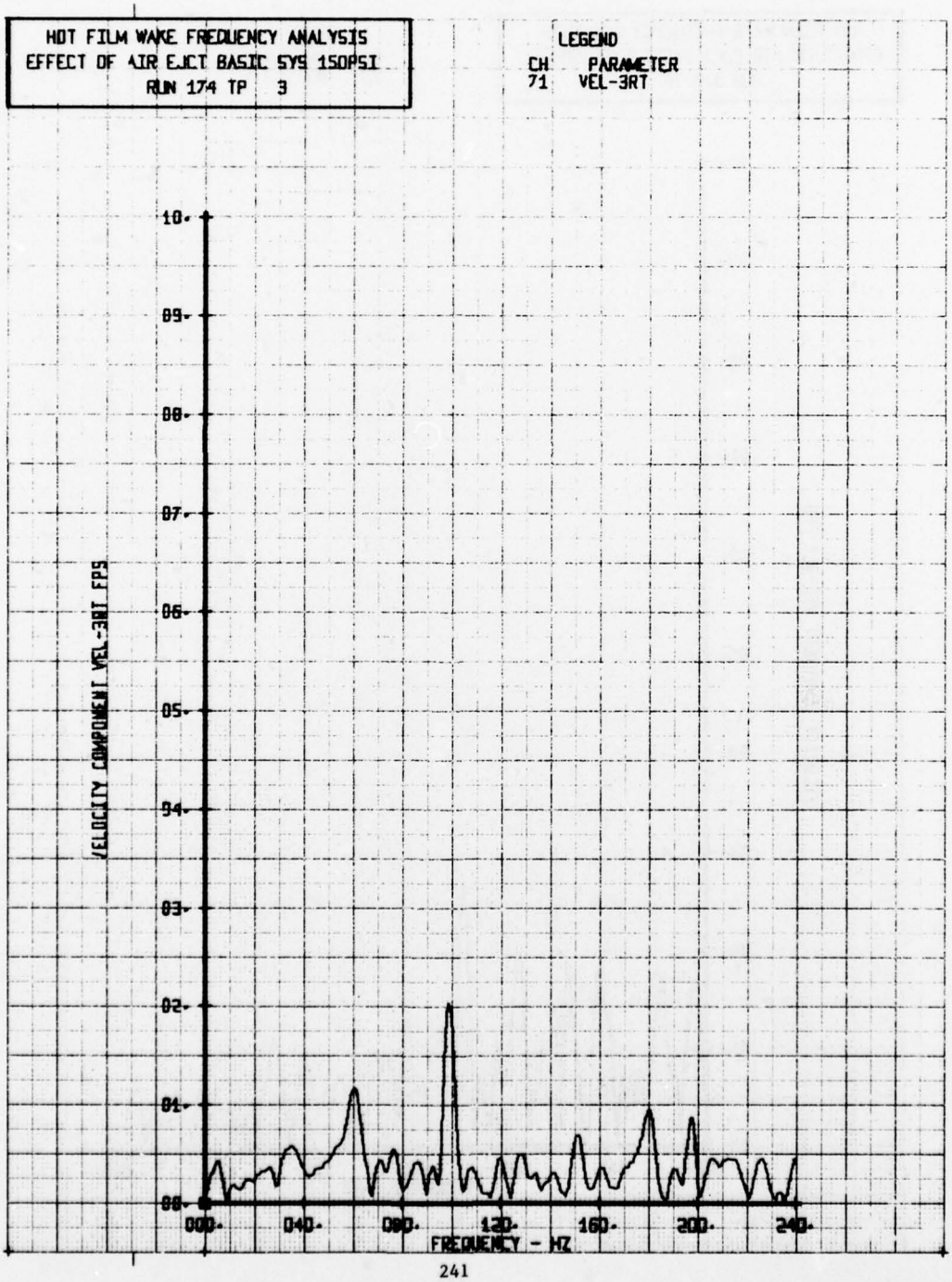
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS 150PSI
RUN 174 TP 3
LEGEND
CH PARAMETER
71 VEL-3RT
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VELOCITY COMPONENT VEL-3RT FPS
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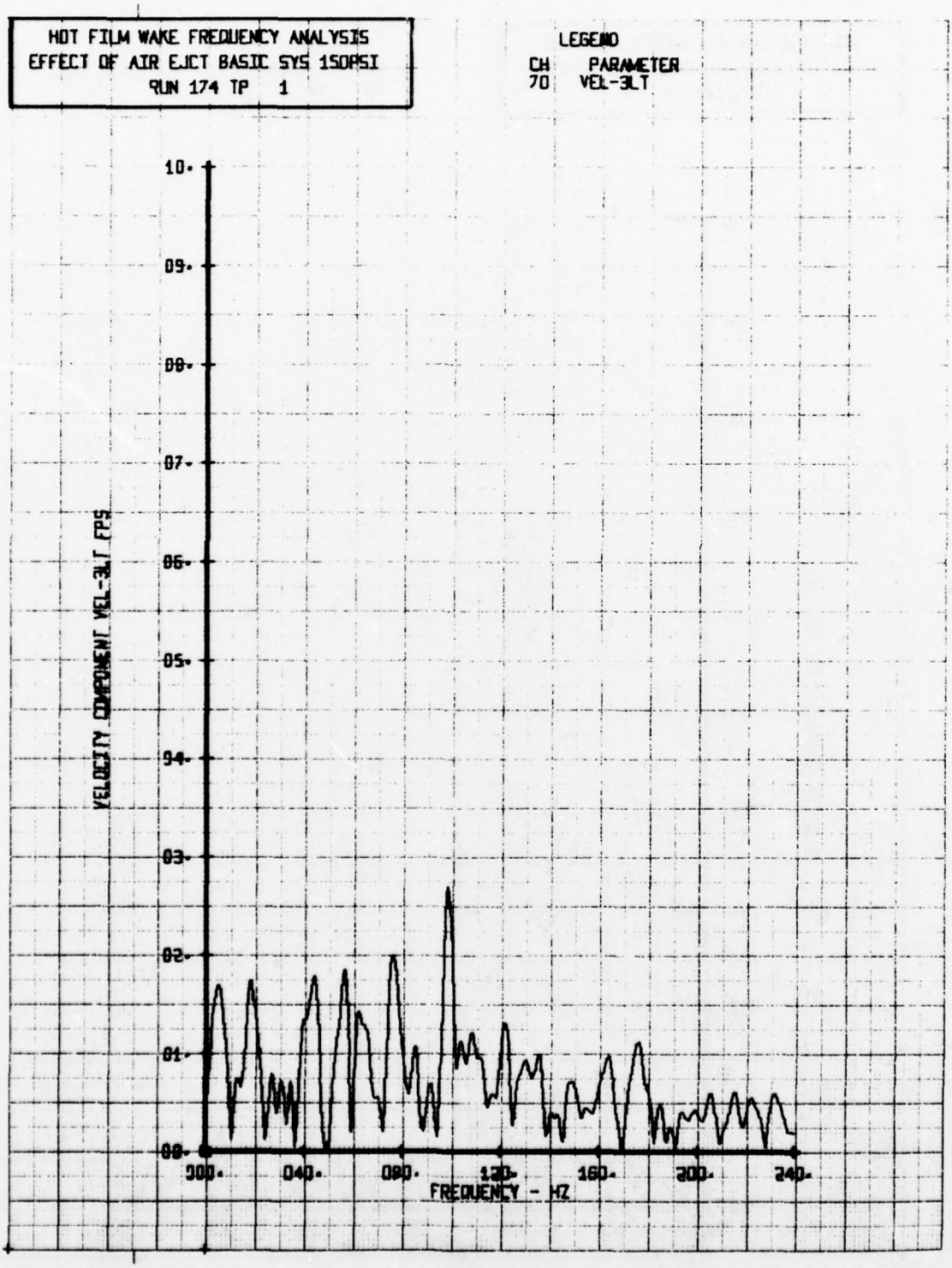
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS 150PSI
RUN 174 TP 1
LEGEND
CH PARAMETER
70 VEL-3LT
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VELOCITY COMPONENT VEL-3LT FPS
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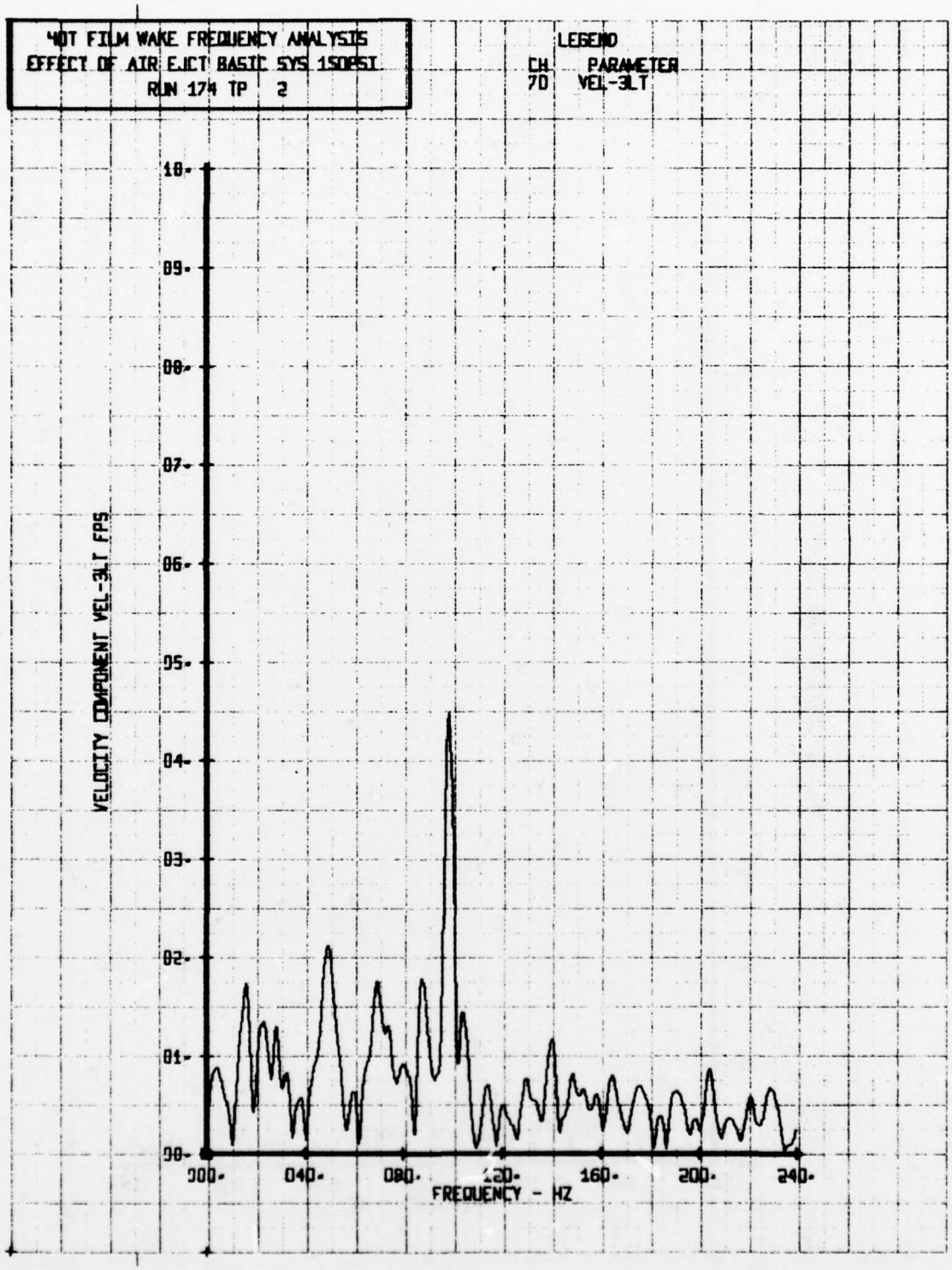
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS 150PSI
RUN 174 TP 2
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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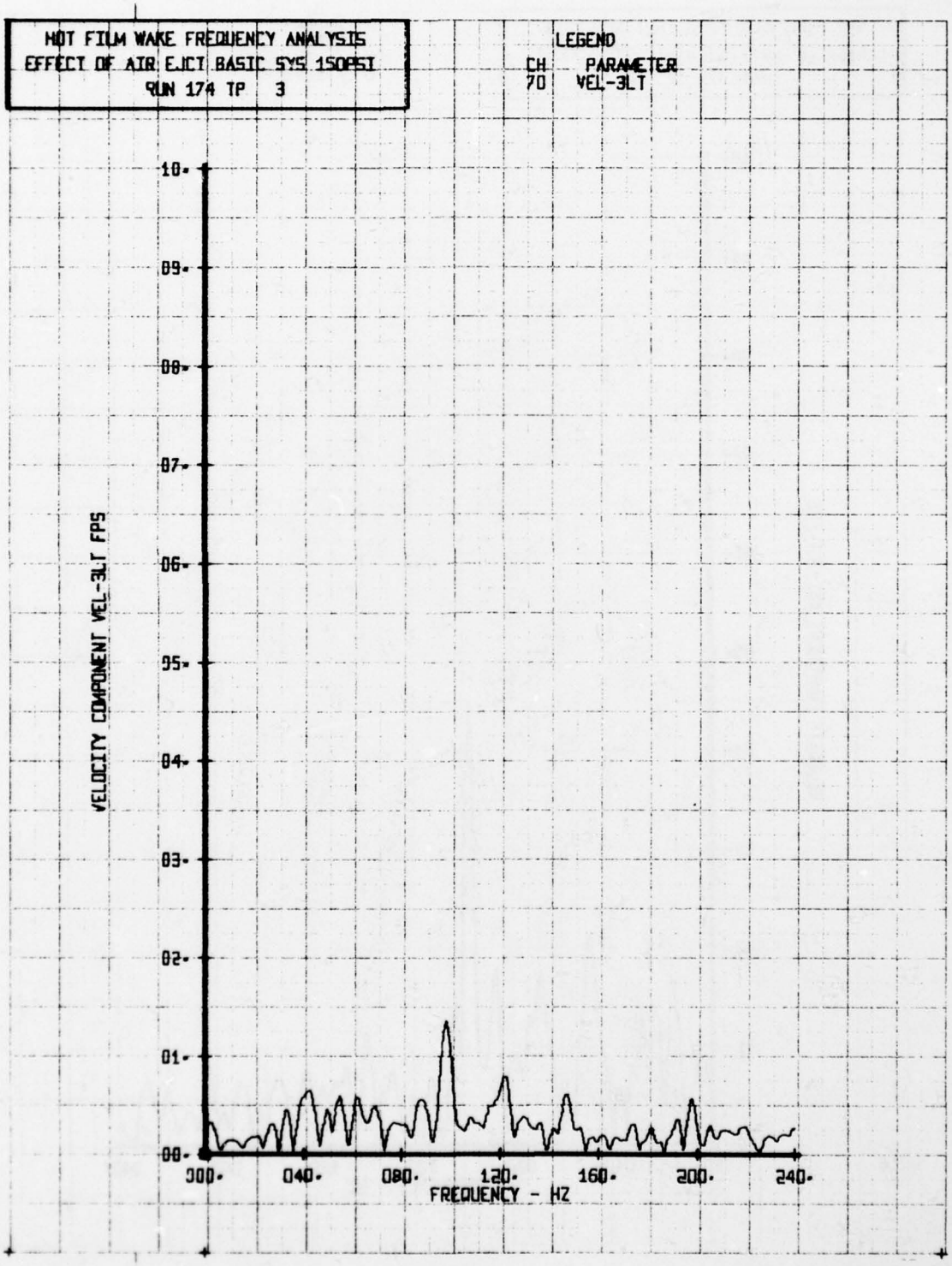
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
EFFECT OF AIR EJCT BASIC SYS 150PSI
RUN 174 TP 3
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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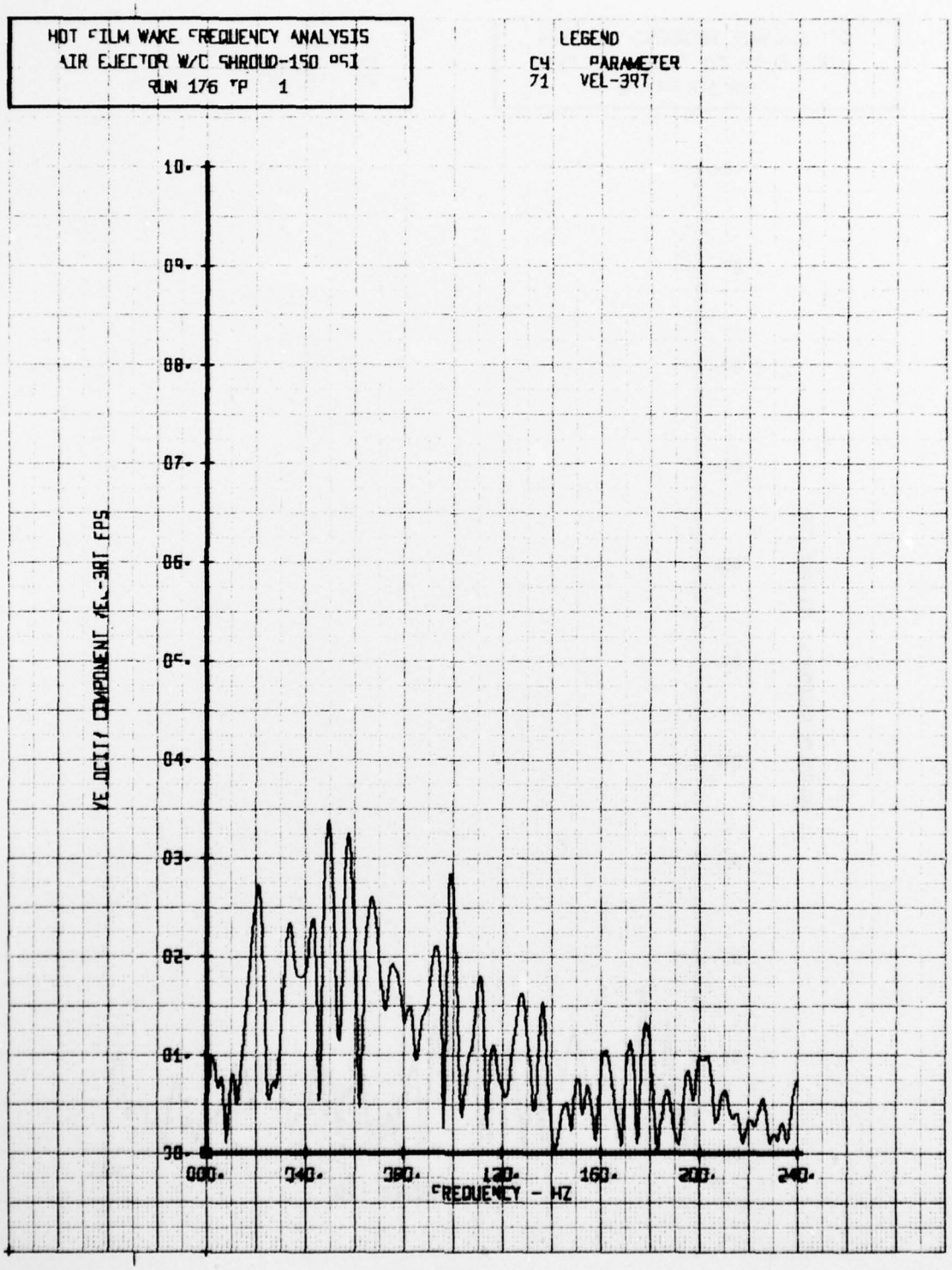
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJECTOR W/C SHROUD-150 PSI
RUN 176 TP 1
LEGEND
C4 PARAMETER
71 VEL-397
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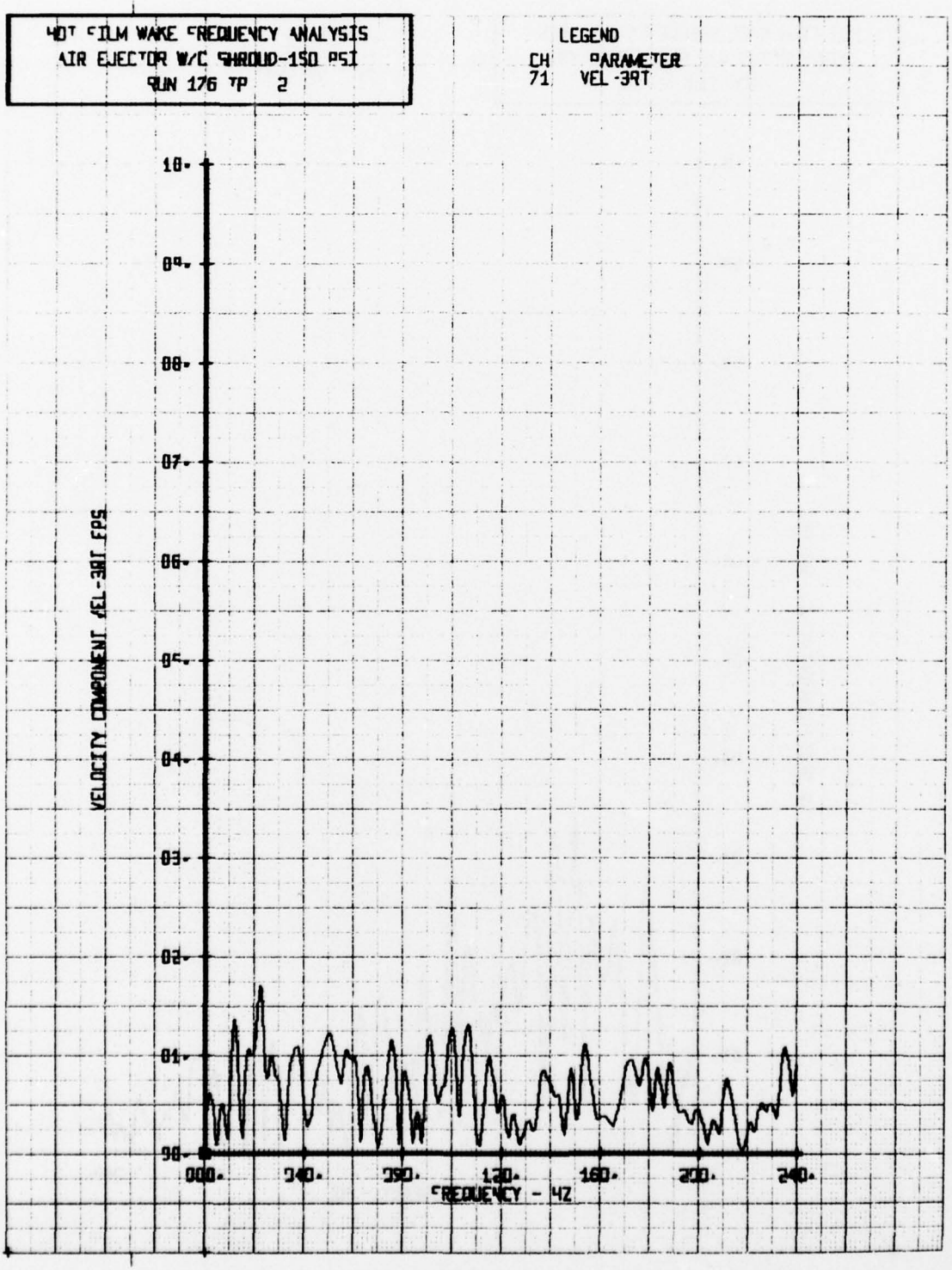
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJECTOR W/C SHROUD-150 PSI
RUN 176 TP 2
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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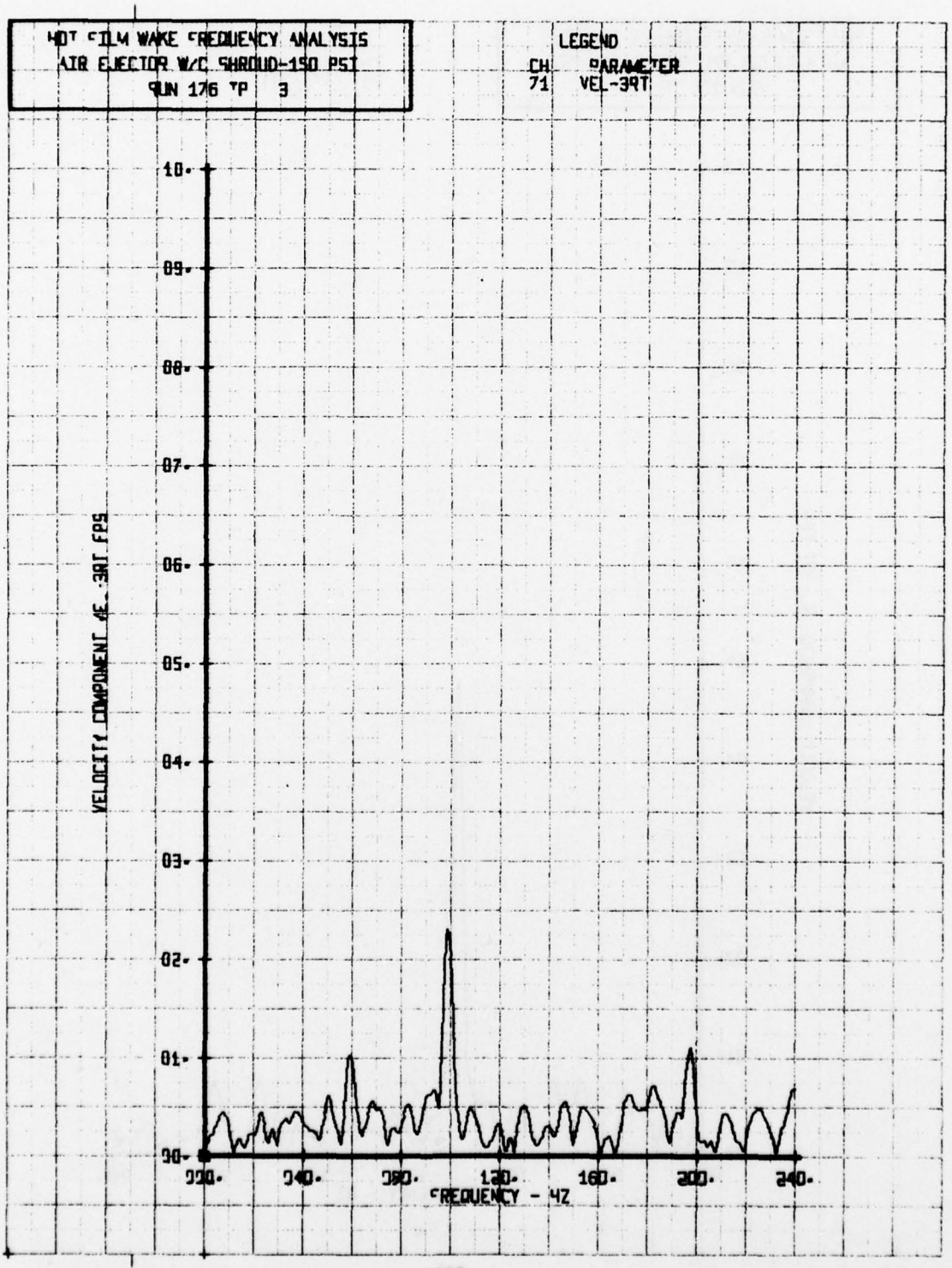
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJECTOR W/C SHROUD-150 PSI
RUN 176 TP 3
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT #E-3RT FPS
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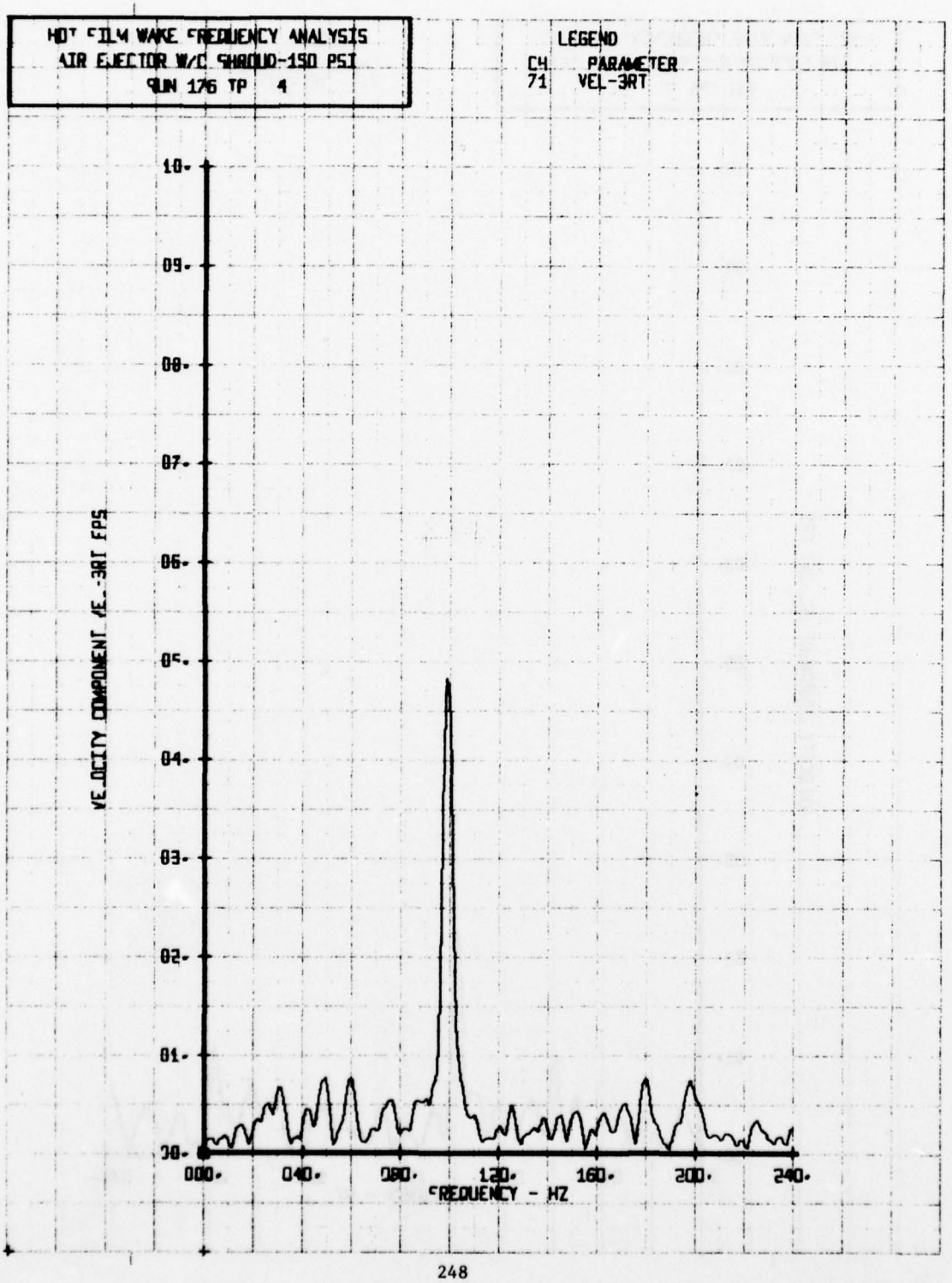
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJECTOR W/C SHROUD-150 PSI
RUN 176 TP 4
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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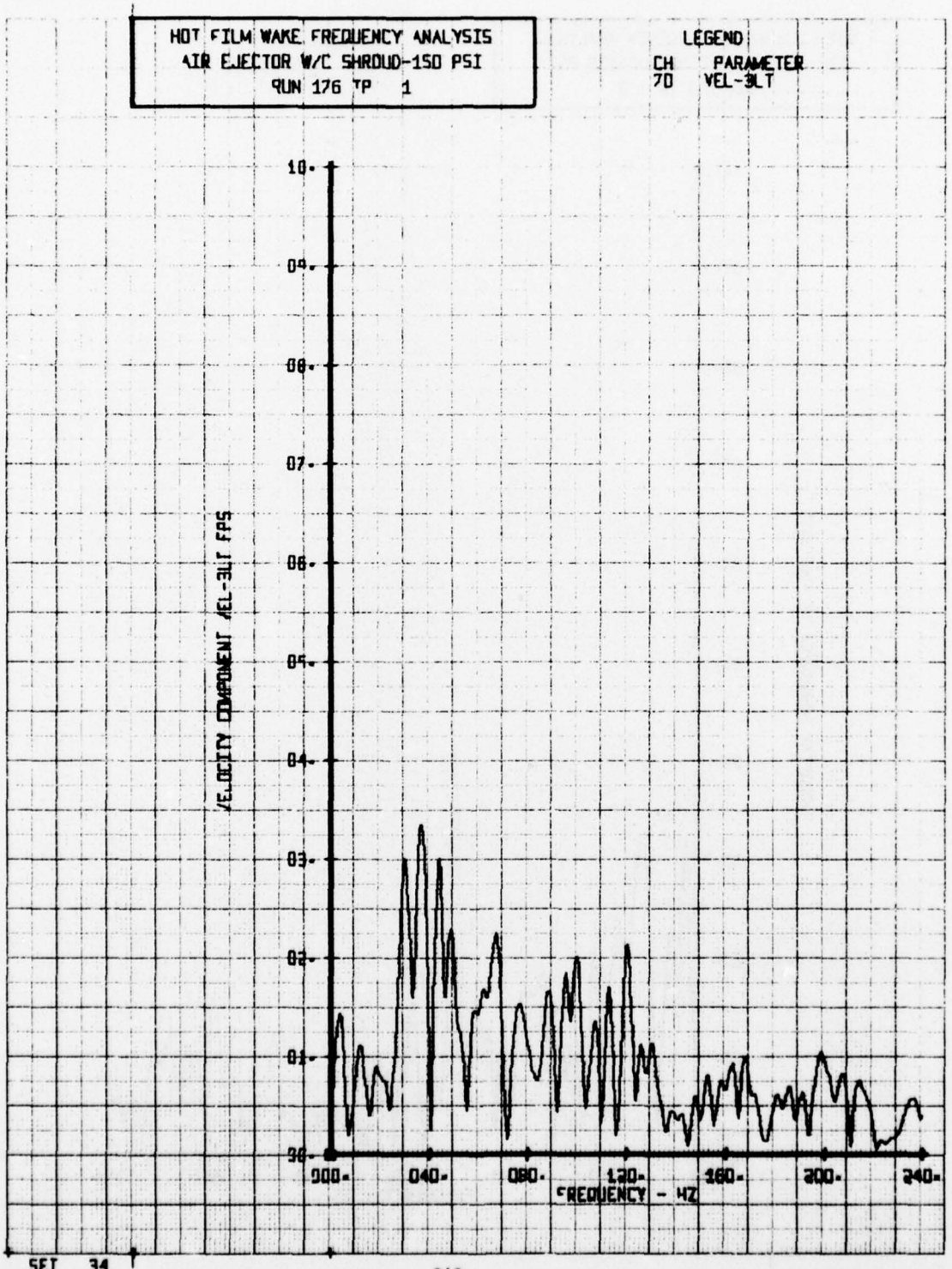
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJECTOR W/C SHROUD-150 PSI
RUN 176 TP 1
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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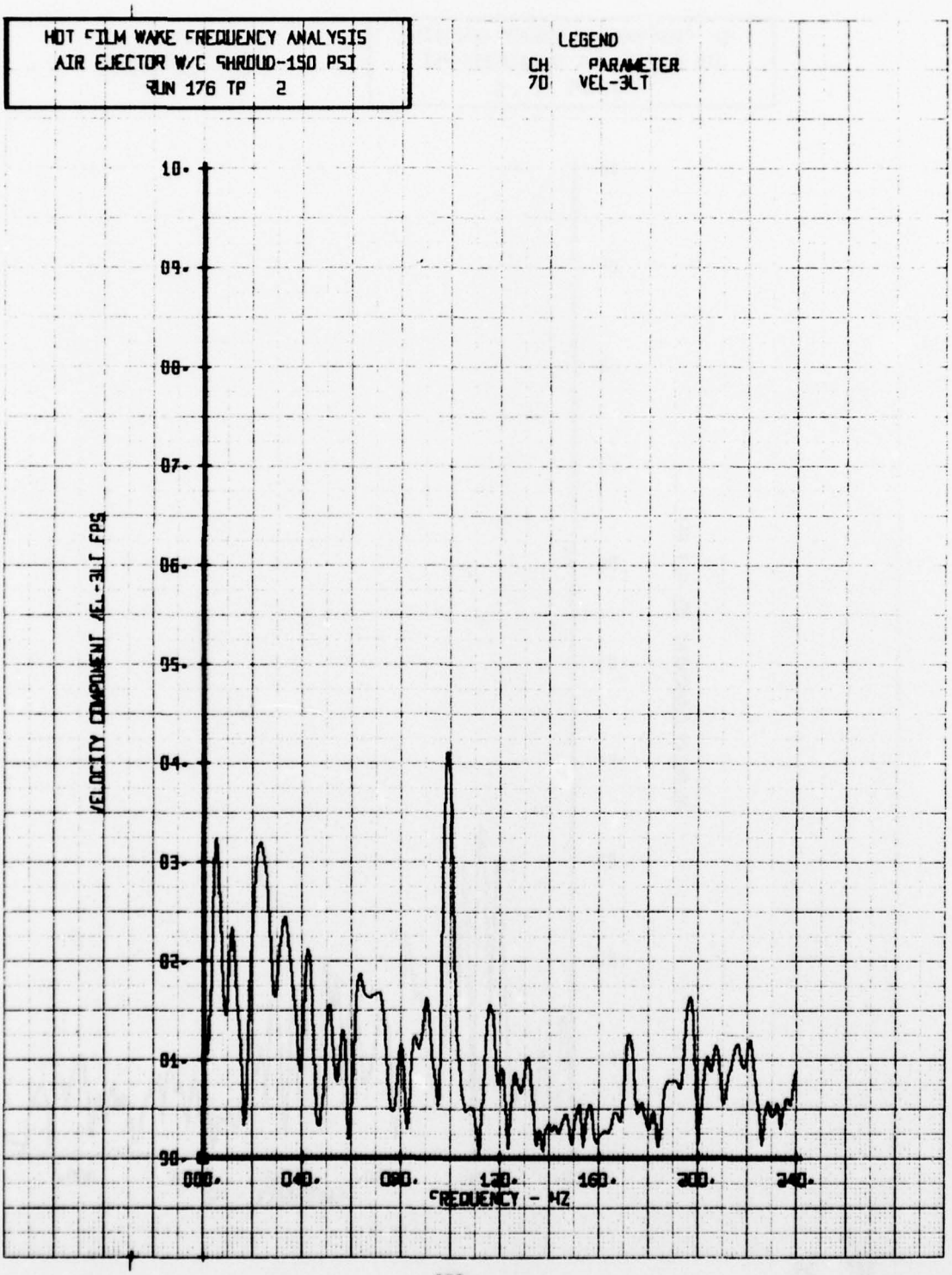
FREQUENCY - HZ
SET 34
RUN 169


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJECTOR W/C SHROUD-150 PSI
RUN 176 TP 2
LEGEND
CH PARAMETER
70 VEL-3LT
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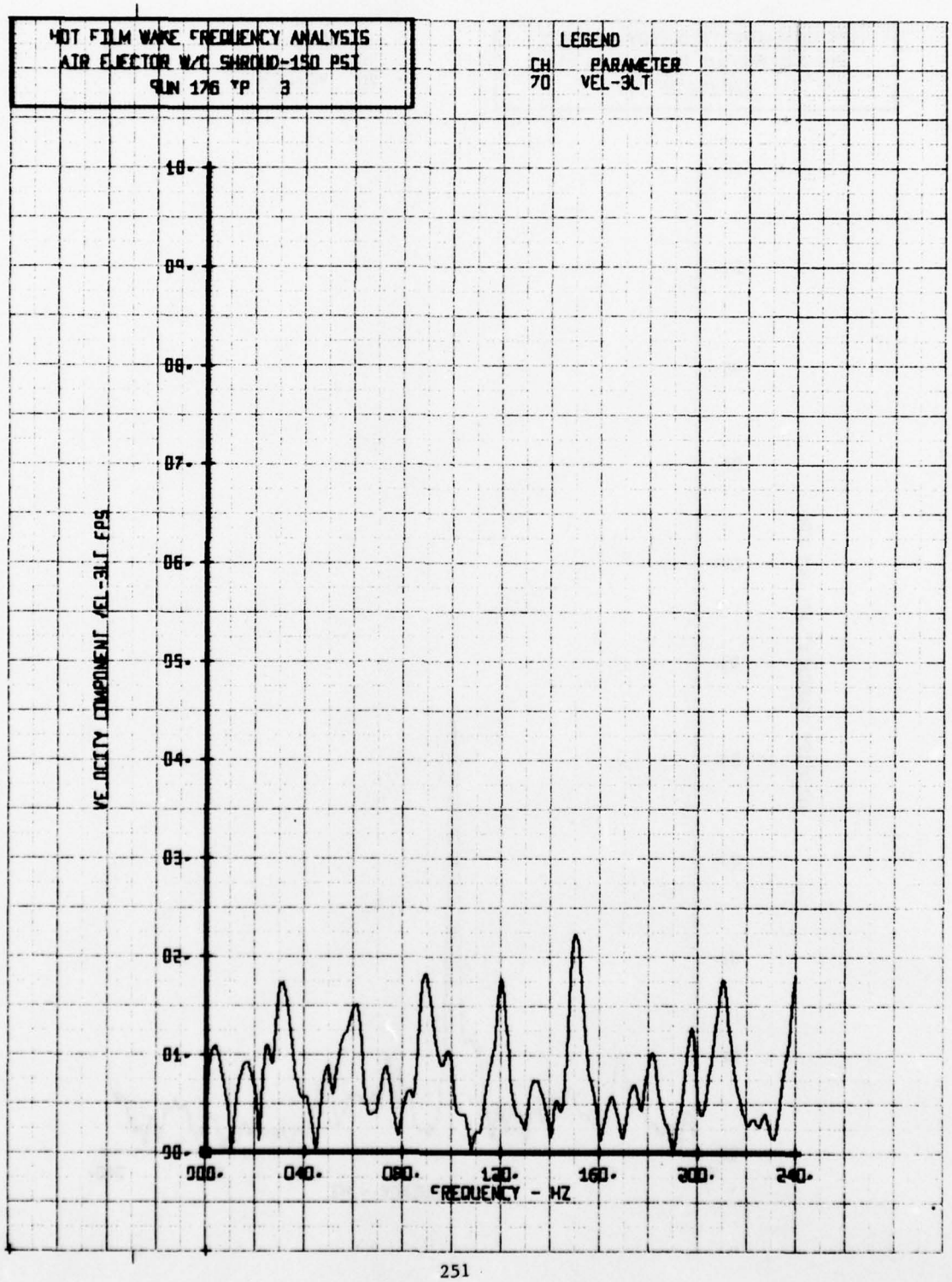
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJECTOR W/O SHROUD-150 PSI
RUN 176 TP 3
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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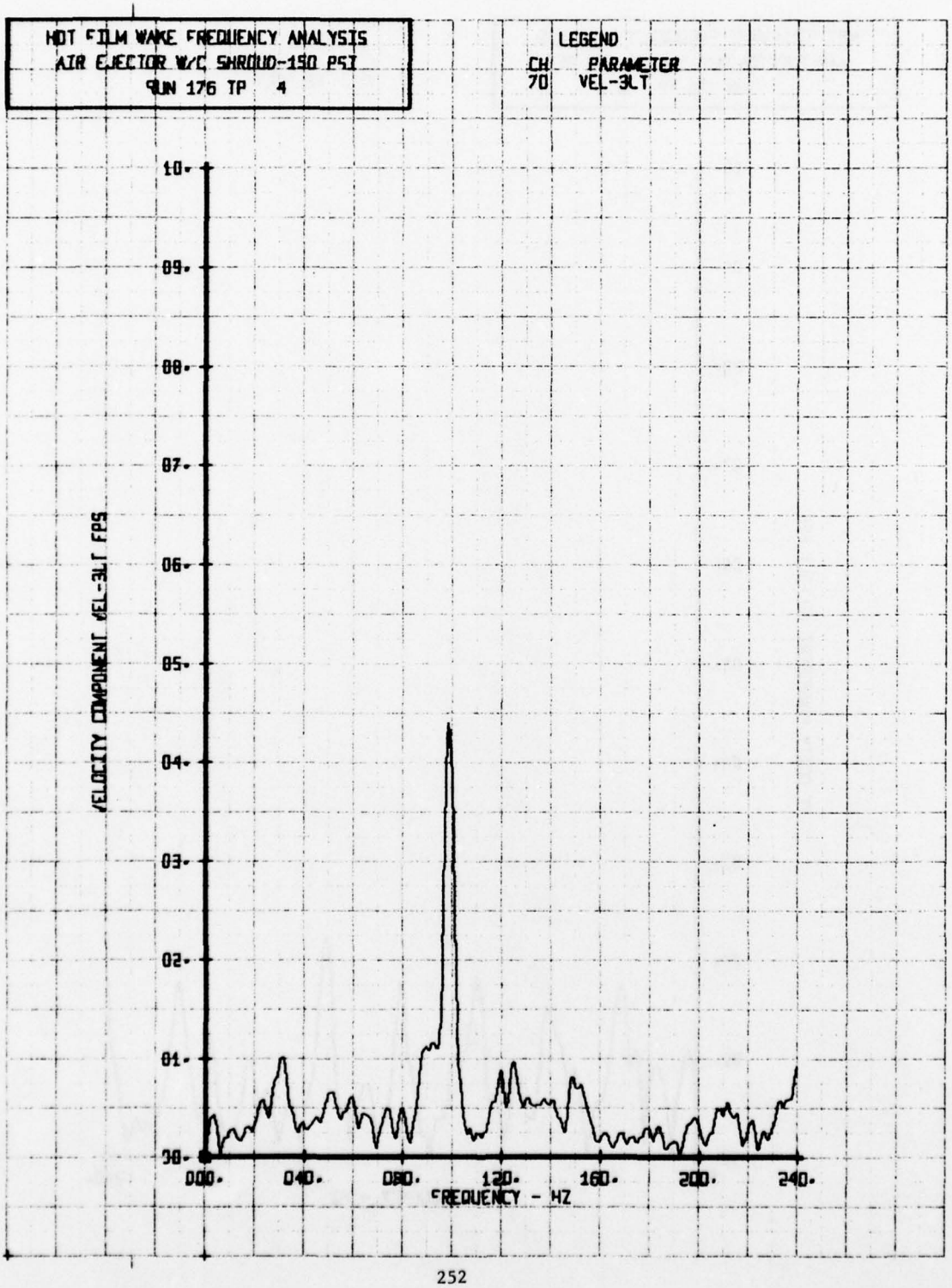
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJECTOR W/C SHROUD-150 PSI
RUN 176 TP 4
LEGEND
CH PARAMETER
70 VEL-3LT
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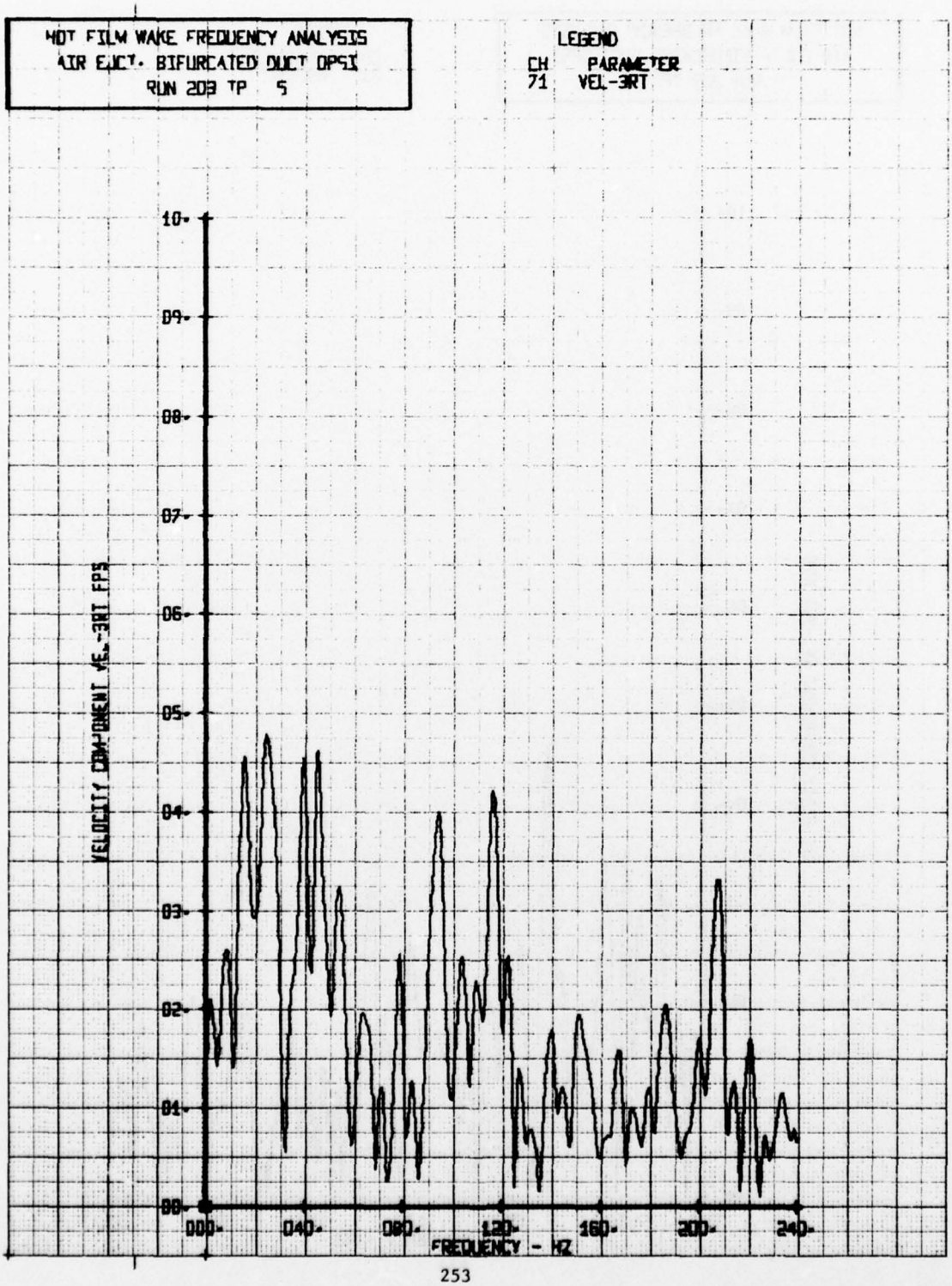
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT DPSI
RUN 203 TP 5
LEGEND
CH PARAMETER
71 VEL-3RT
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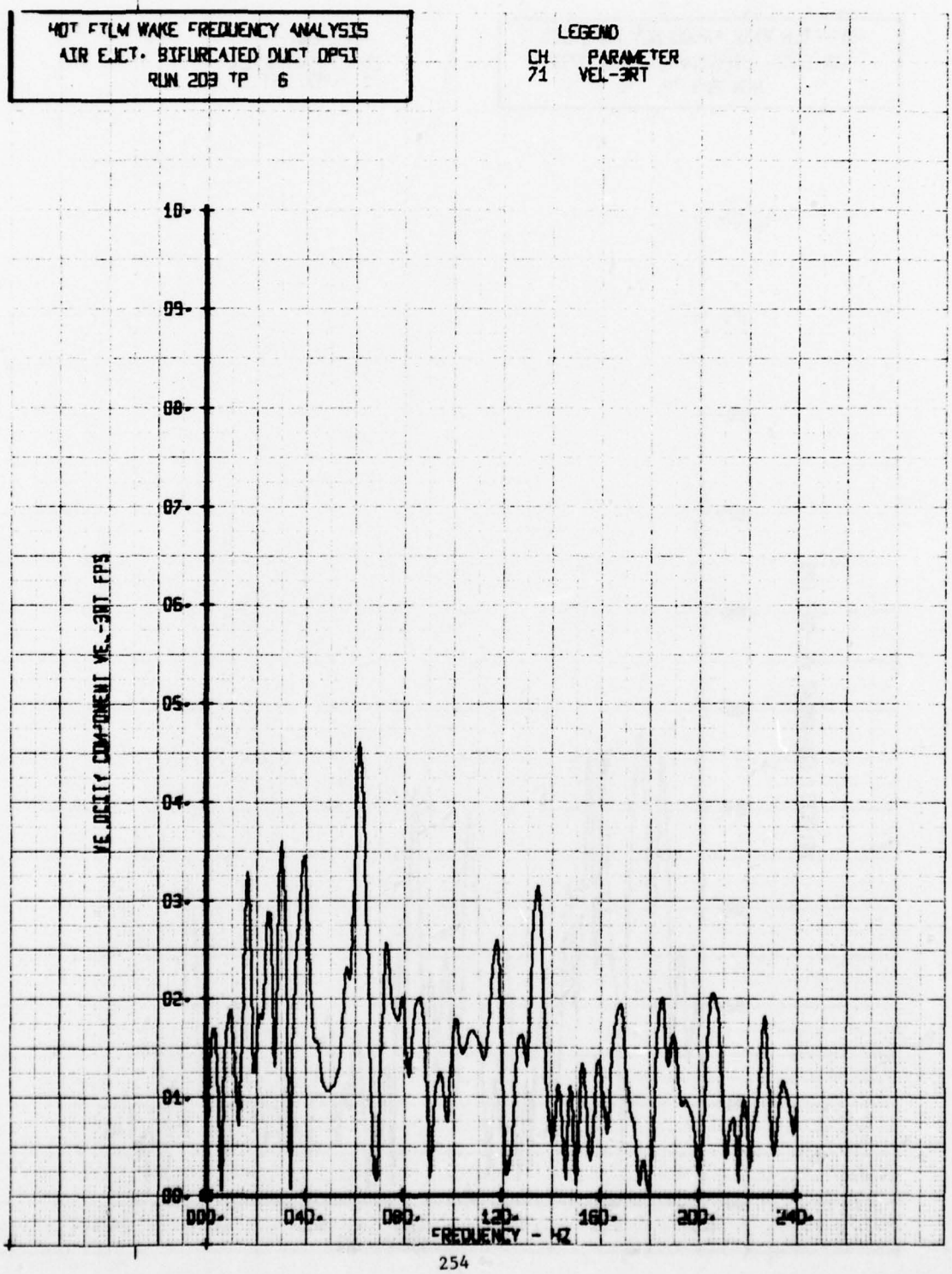
HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT DPSI
RUN 203 TP 6
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VE.-3RT FPS
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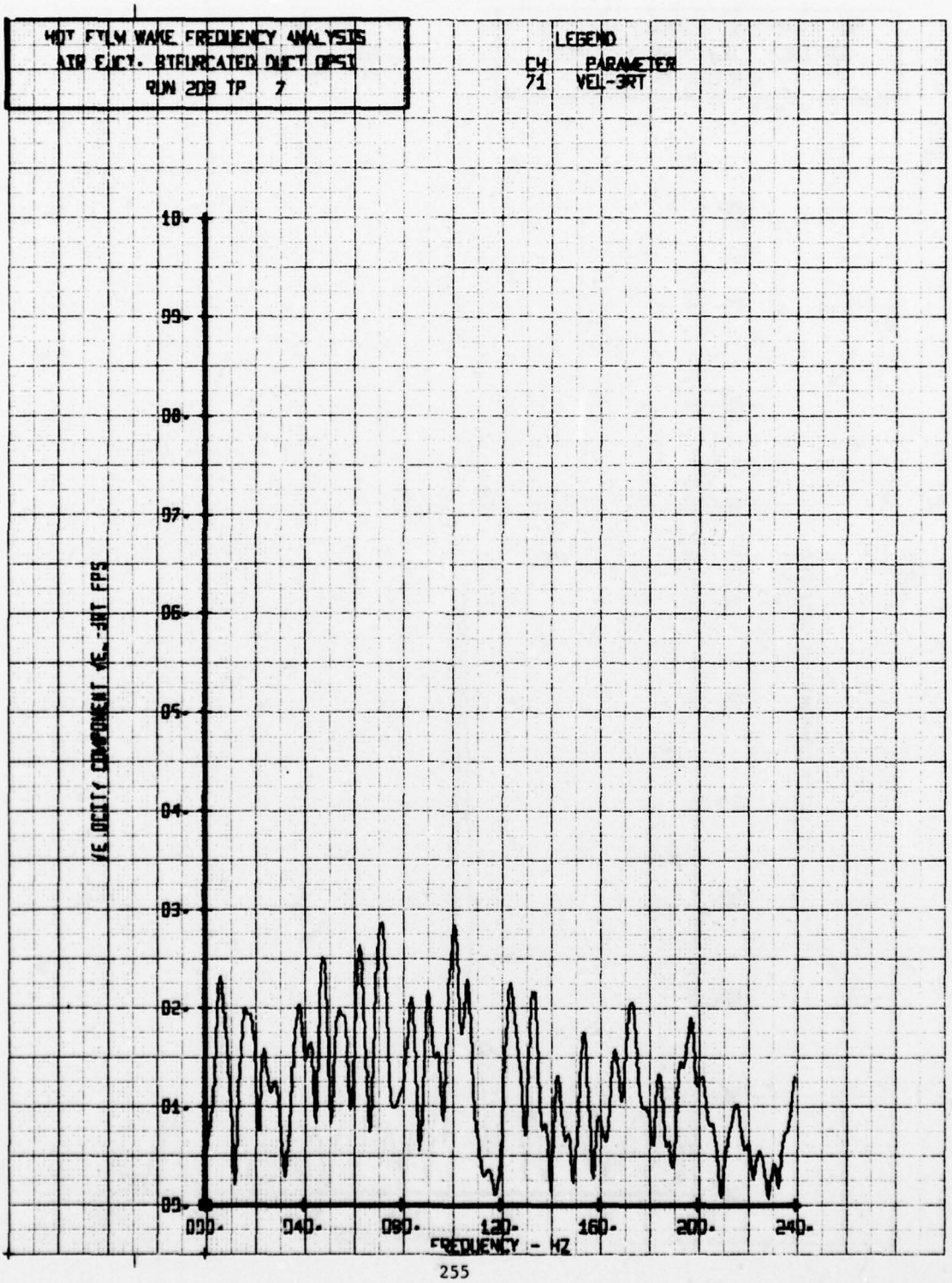
HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT OPSI
RUN 209 TP 7
LEGEND
CH PARAMETER
71 VEL-3RT
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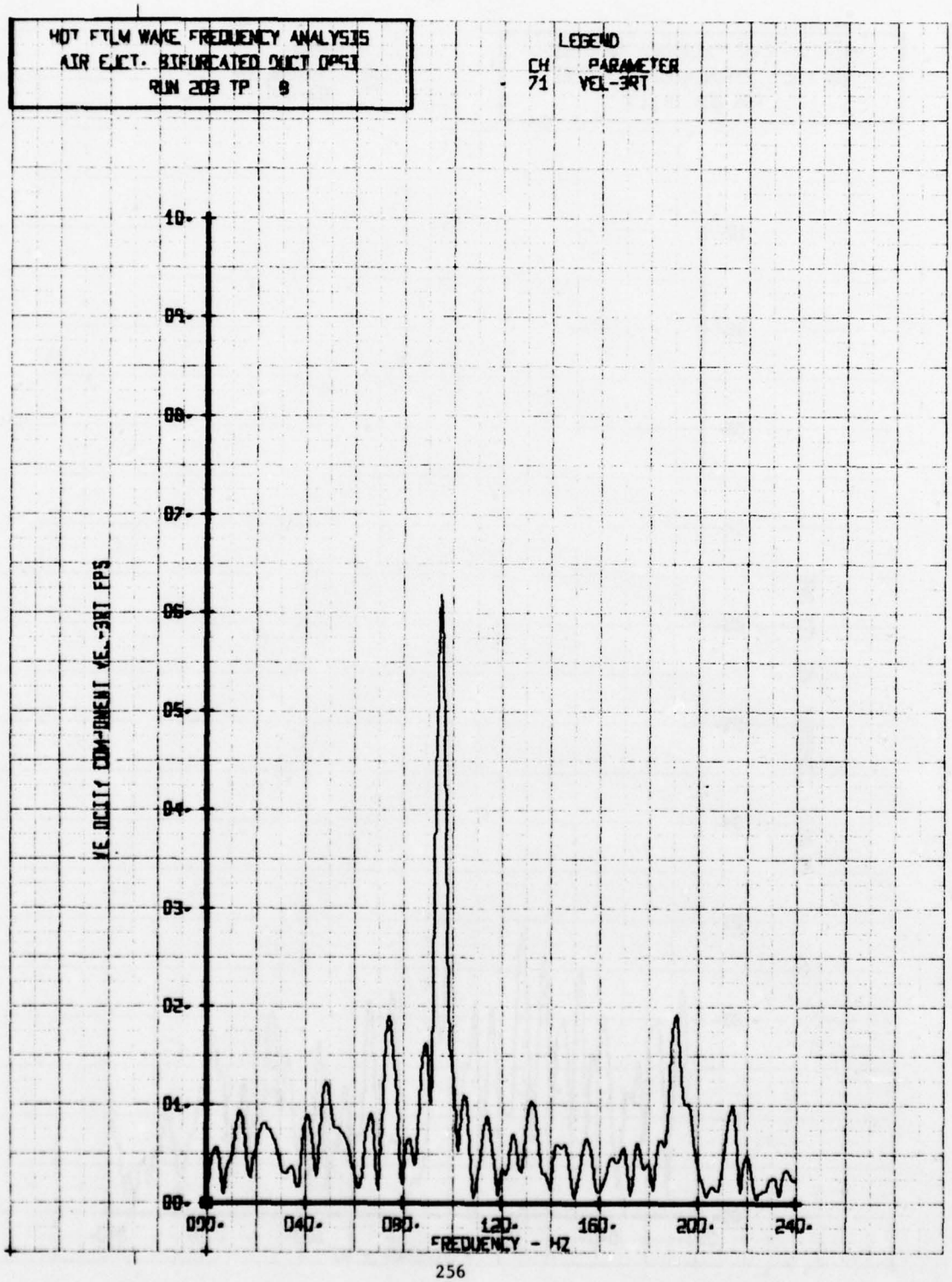
HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT OPSI
RUN 209 TP 9
LEGEND
CH PARAMETER
71 VEL-3RT
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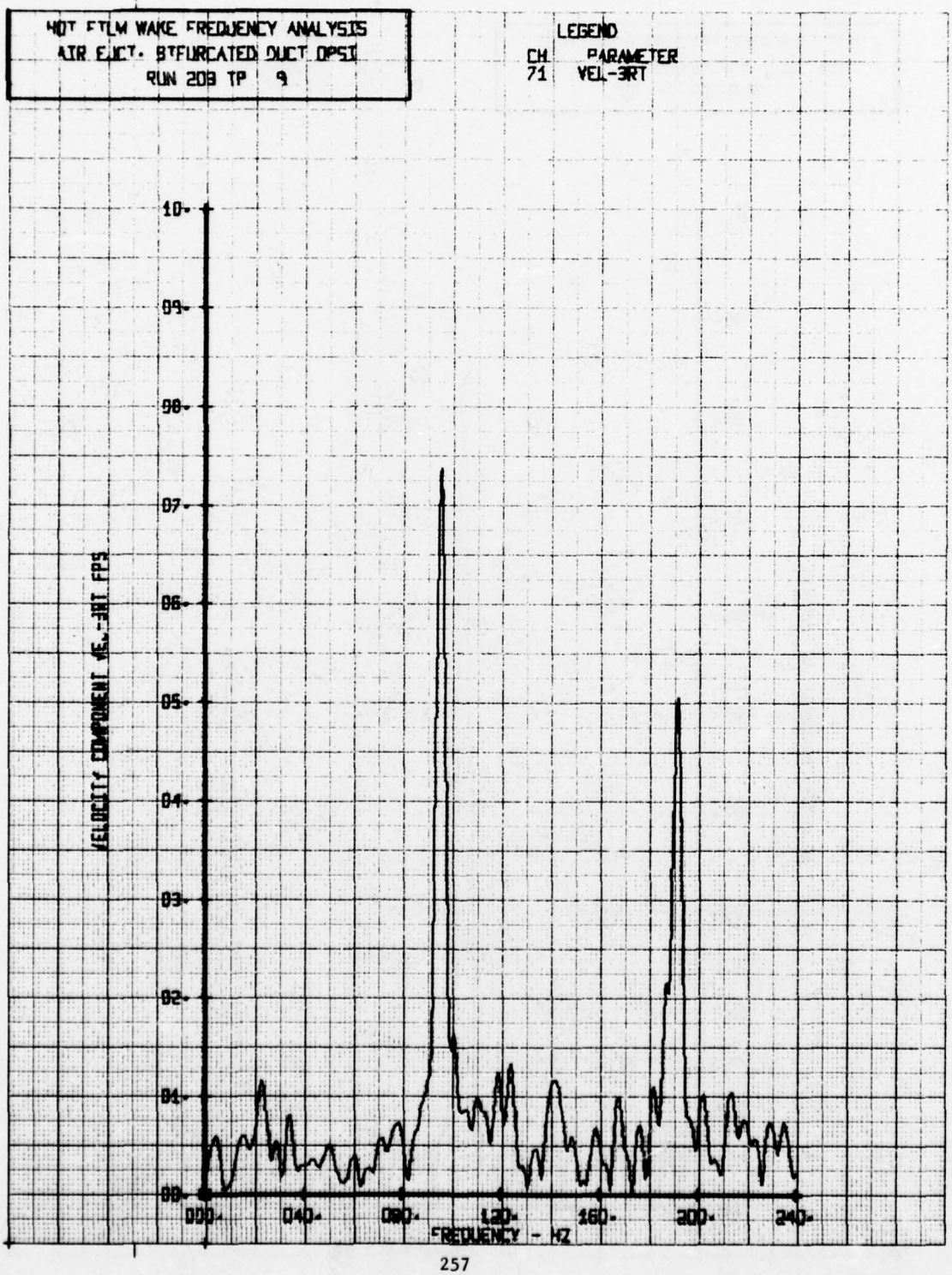
HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT DPSI
RUN 203 TP 9
LEGEND
CH PARAMETER
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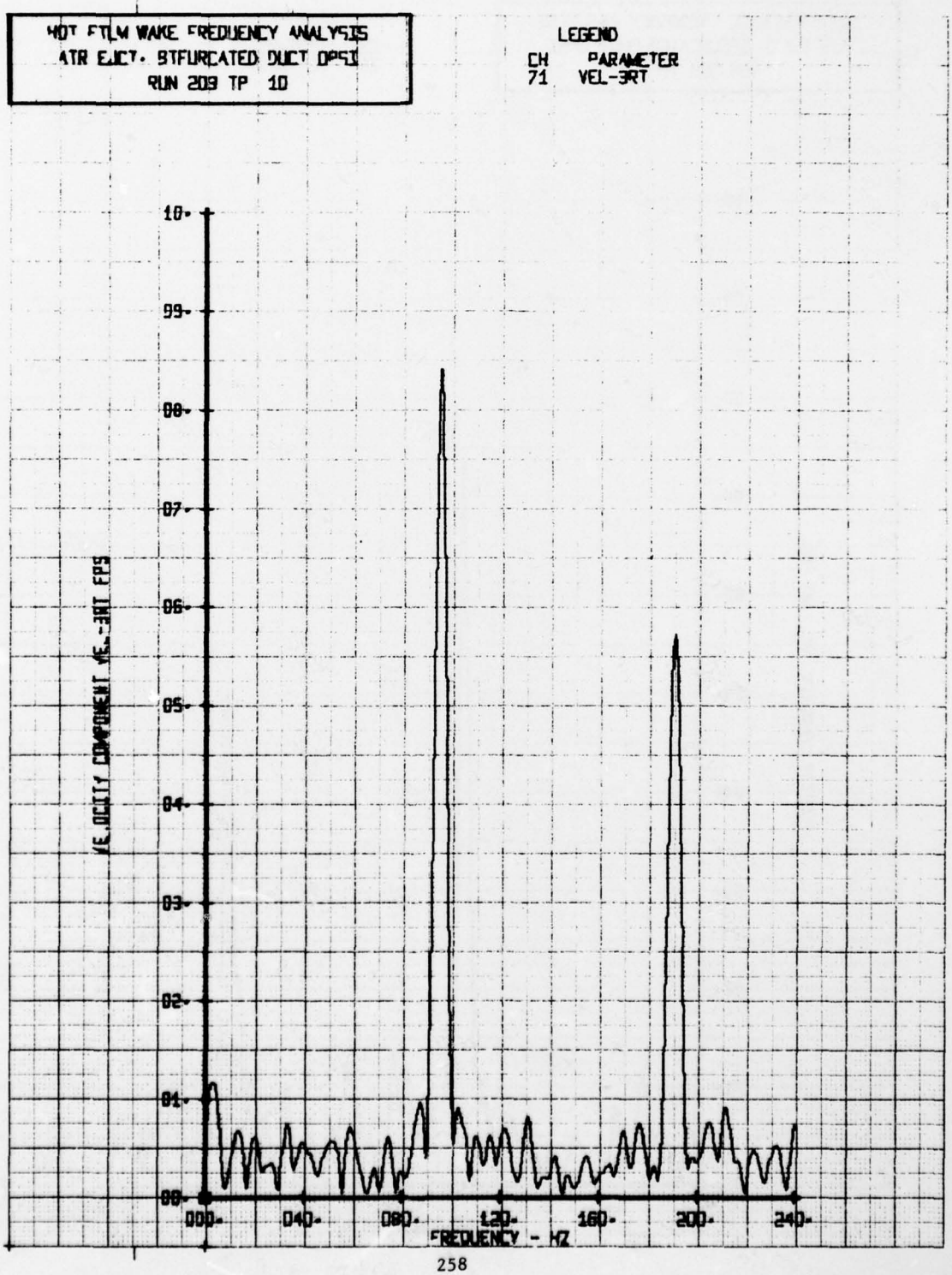
HOT FILM WAKE FREQUENCY ANALYSIS
ATR EJCT. BIFURCATED DUCT DPSI
RUN 209 TP 10
LEGEND
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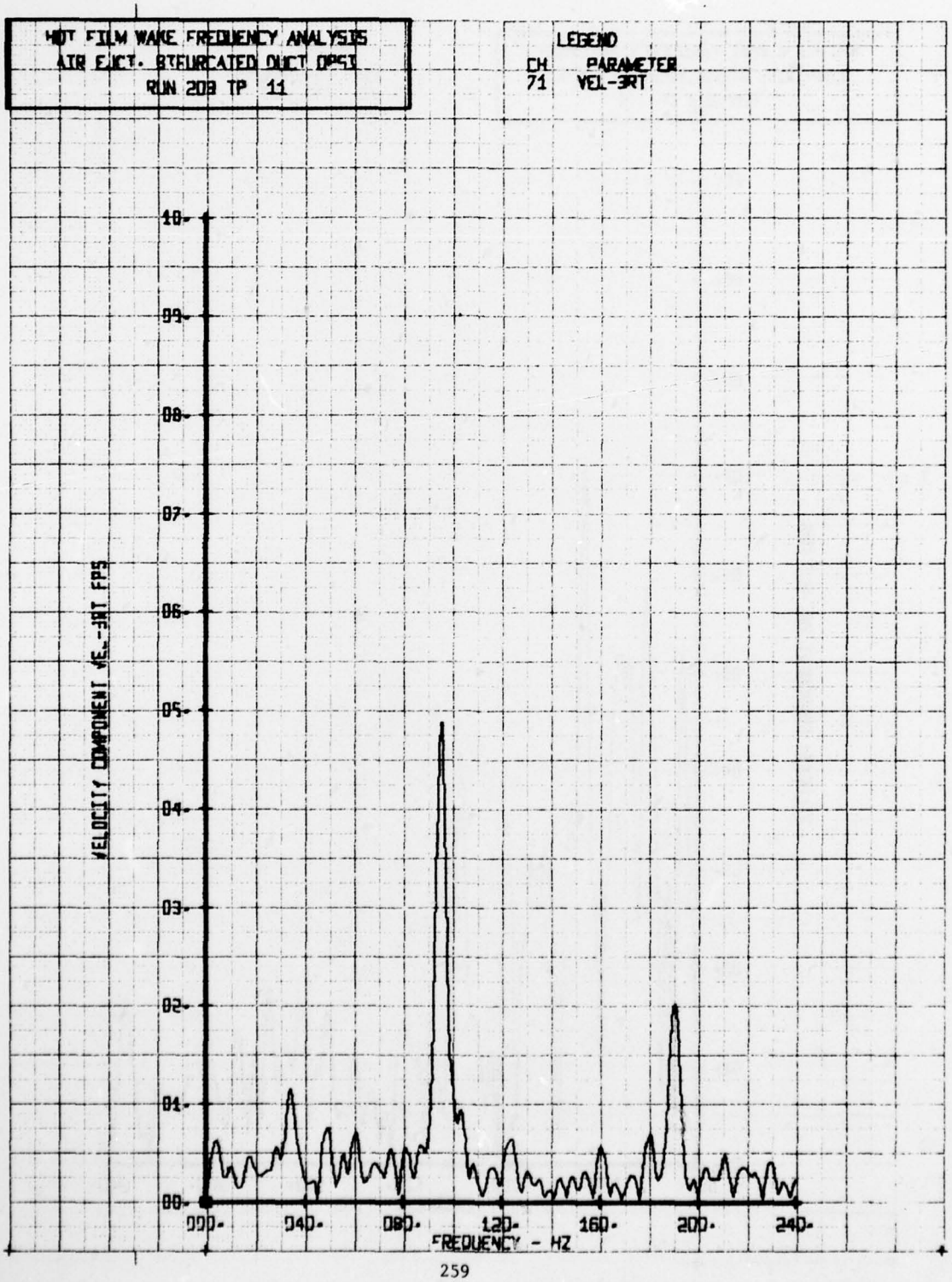
HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT DPSI
RUN 209 TP 11
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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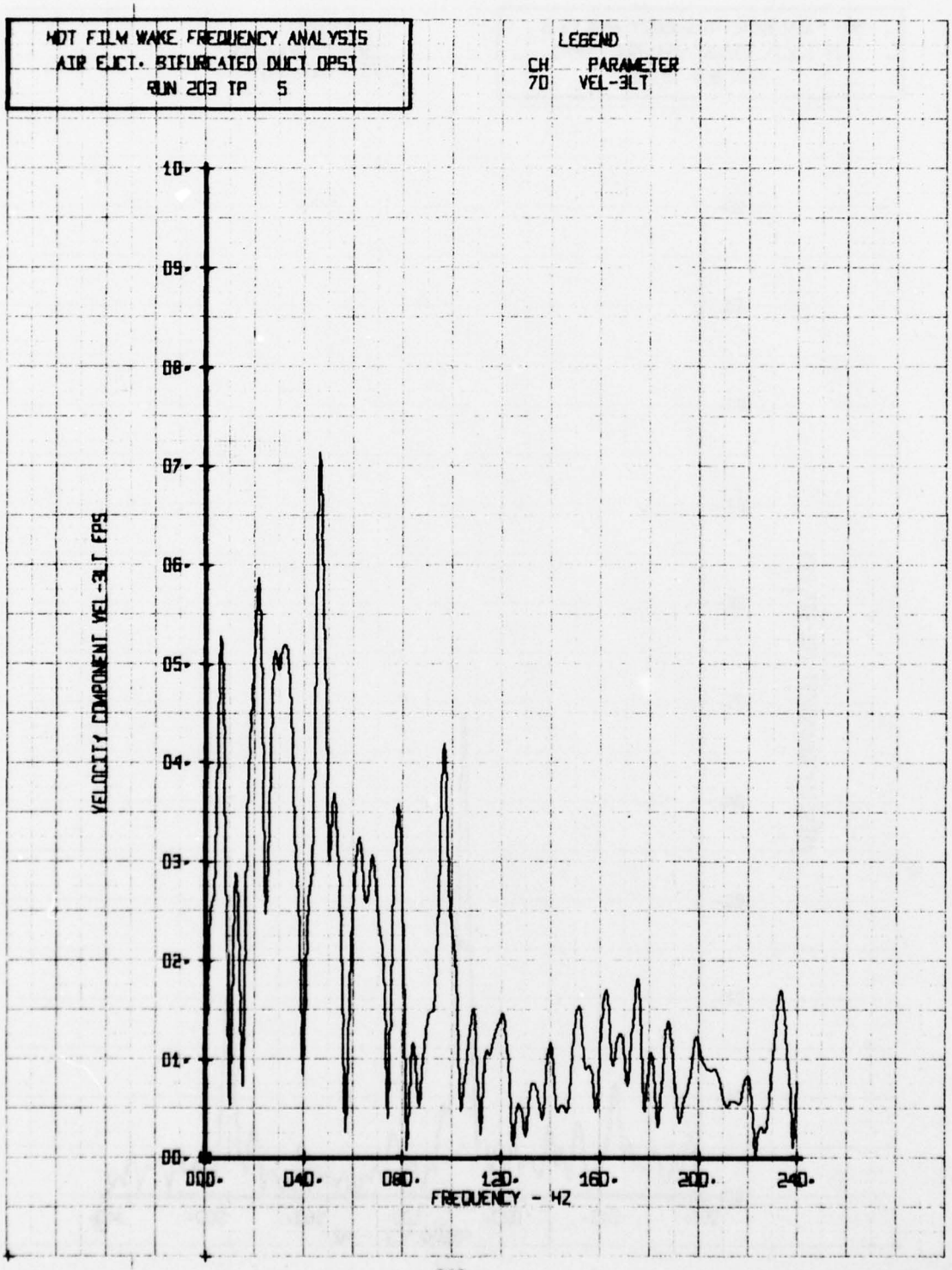
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT OPSI
RUN 203 TP 5
LEGEND
CH PARAMETER
70 VEL-3LT
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VELOCITY COMPONENT VEL-3LT FPS
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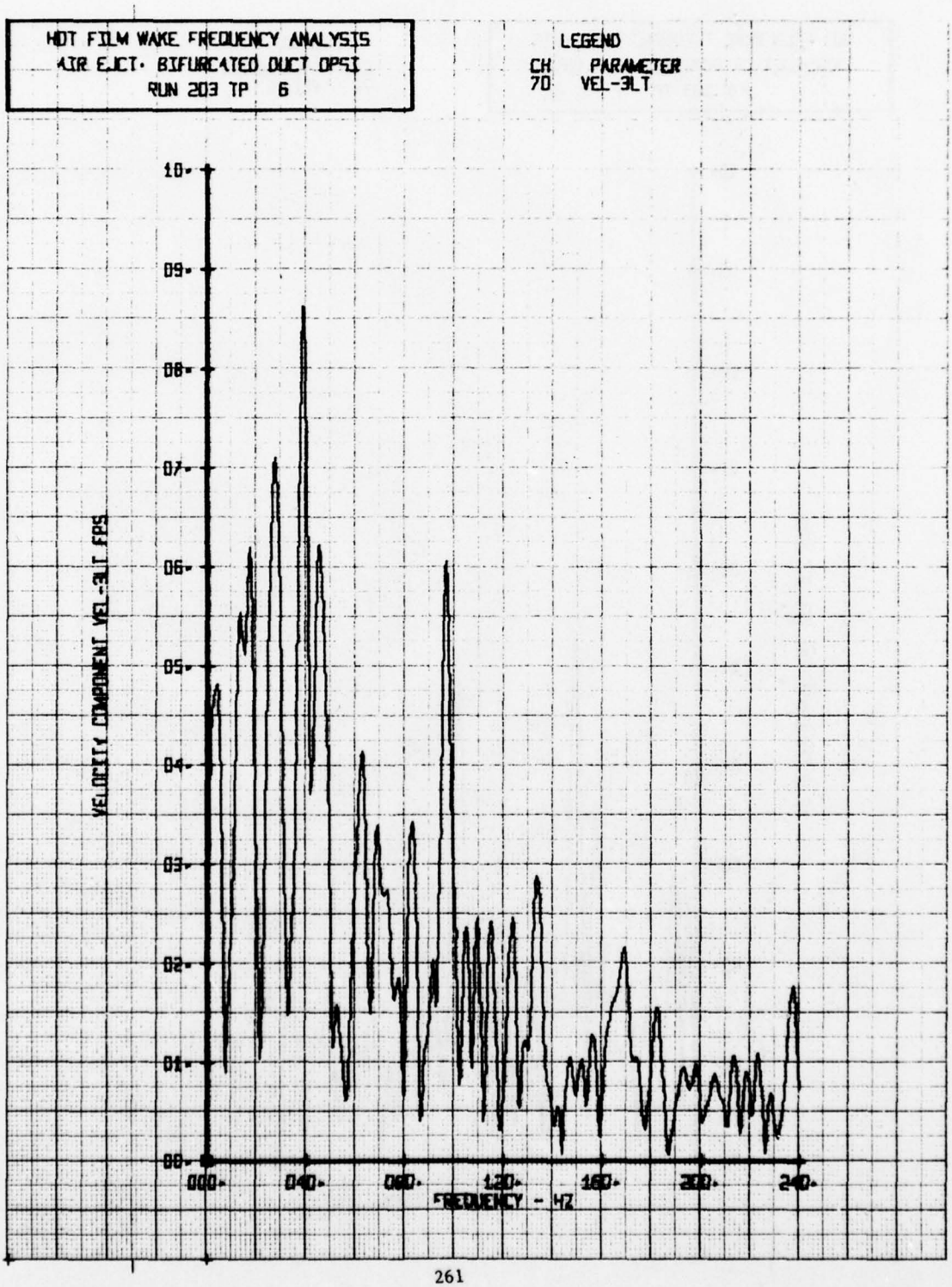
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT OPSI
RUN 203 TP 6
LEGEND
CH PARAMETER
70 VEL-3LT
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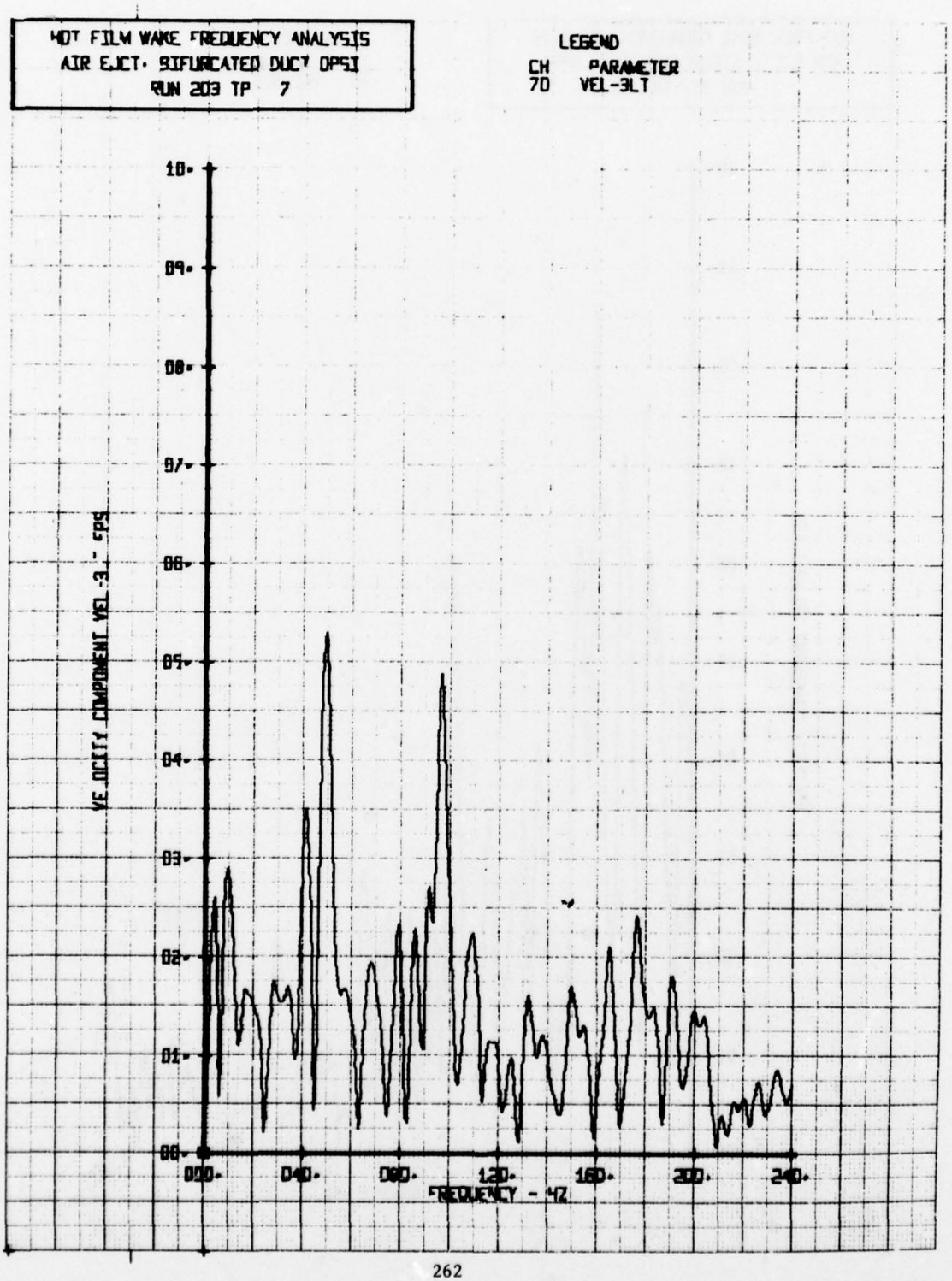
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT DPSI
RUN 203 TP 7
LEGEND
CH PARAMETER
70 VEL-3LT
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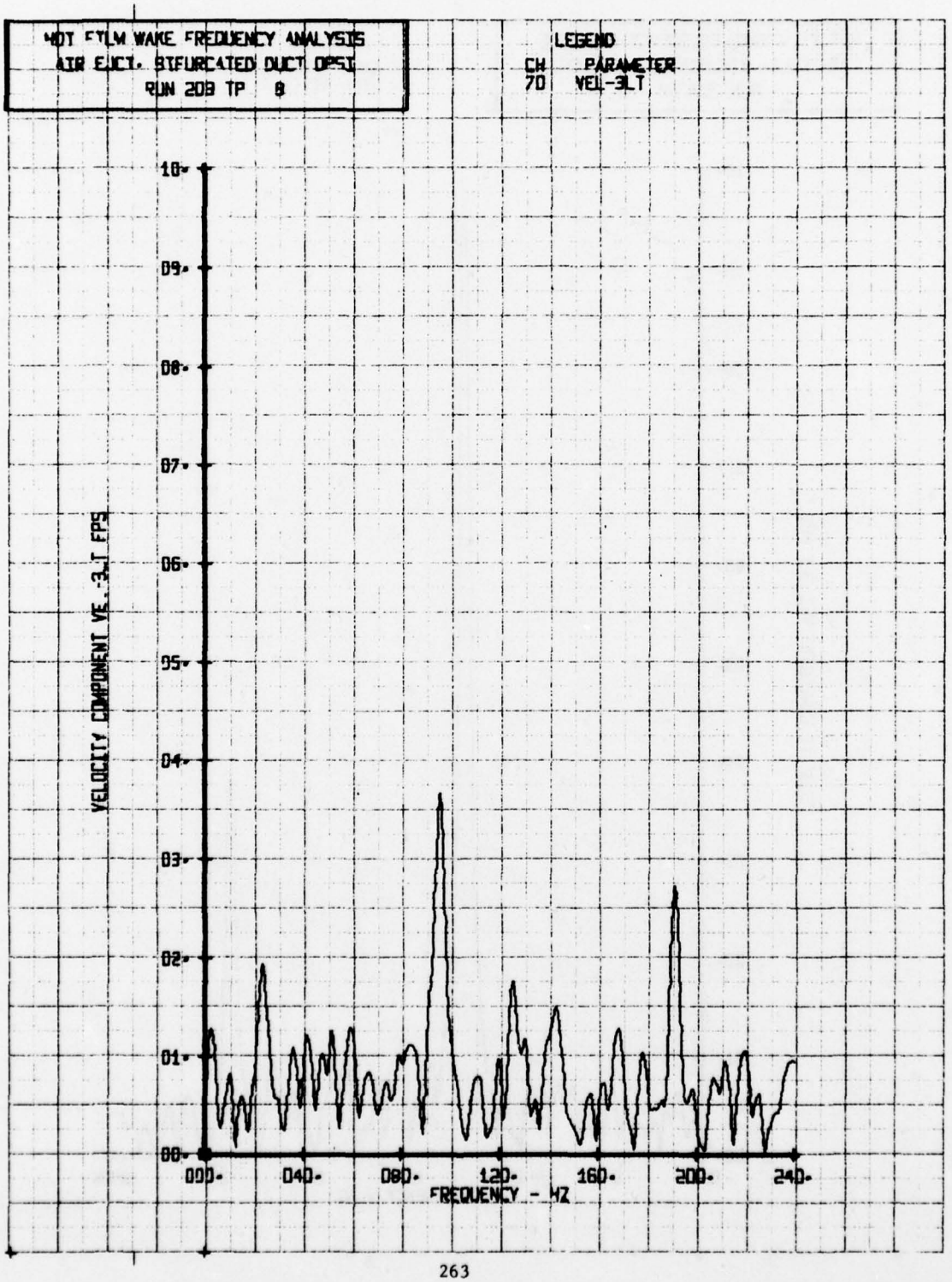
HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT OPSI
RUN 208 TP 8
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VE.-3.T FPS
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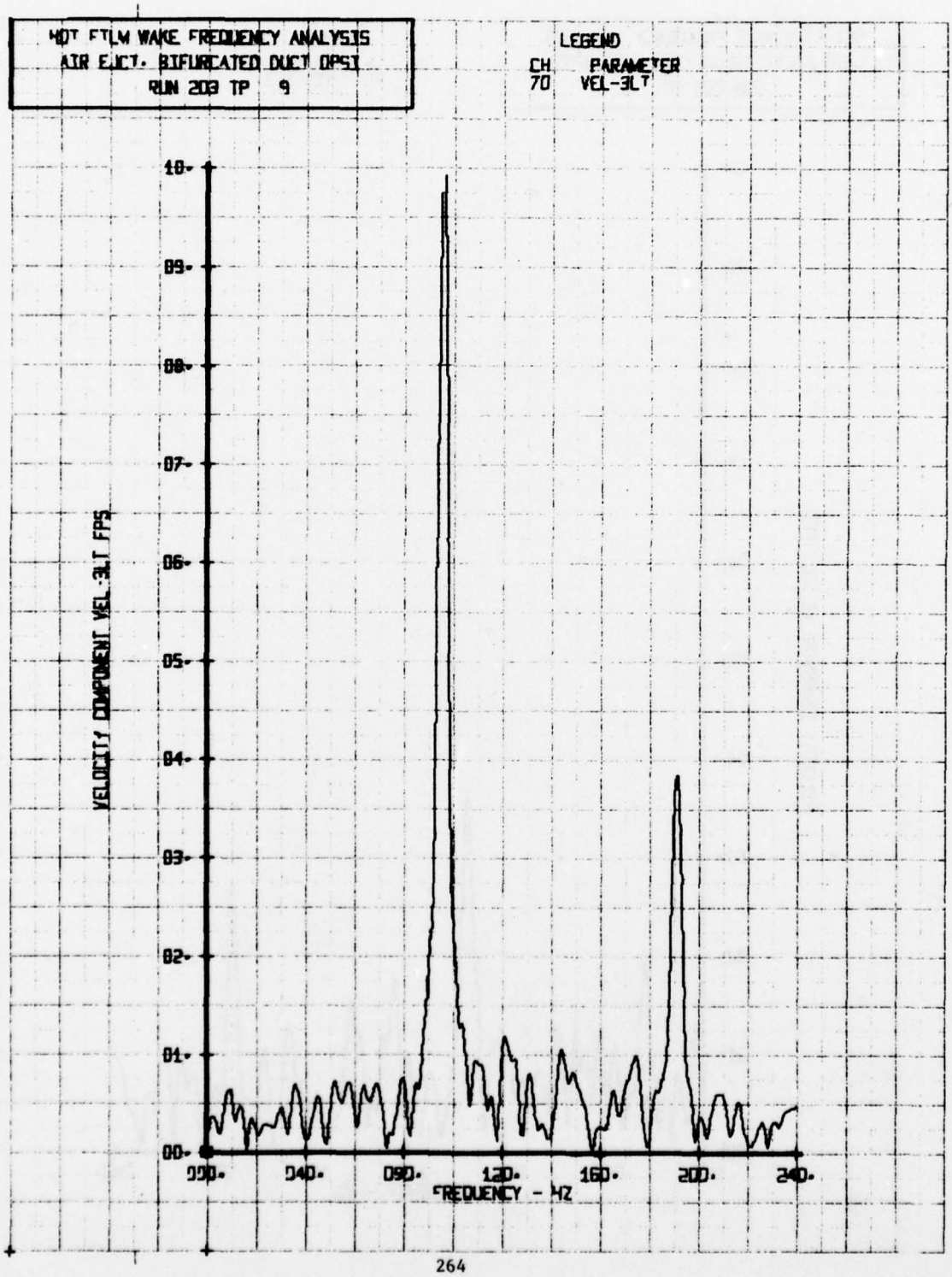
FREQUENCY - HZ


HOT FTLW WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT OPSI
RUN 203 TP 9
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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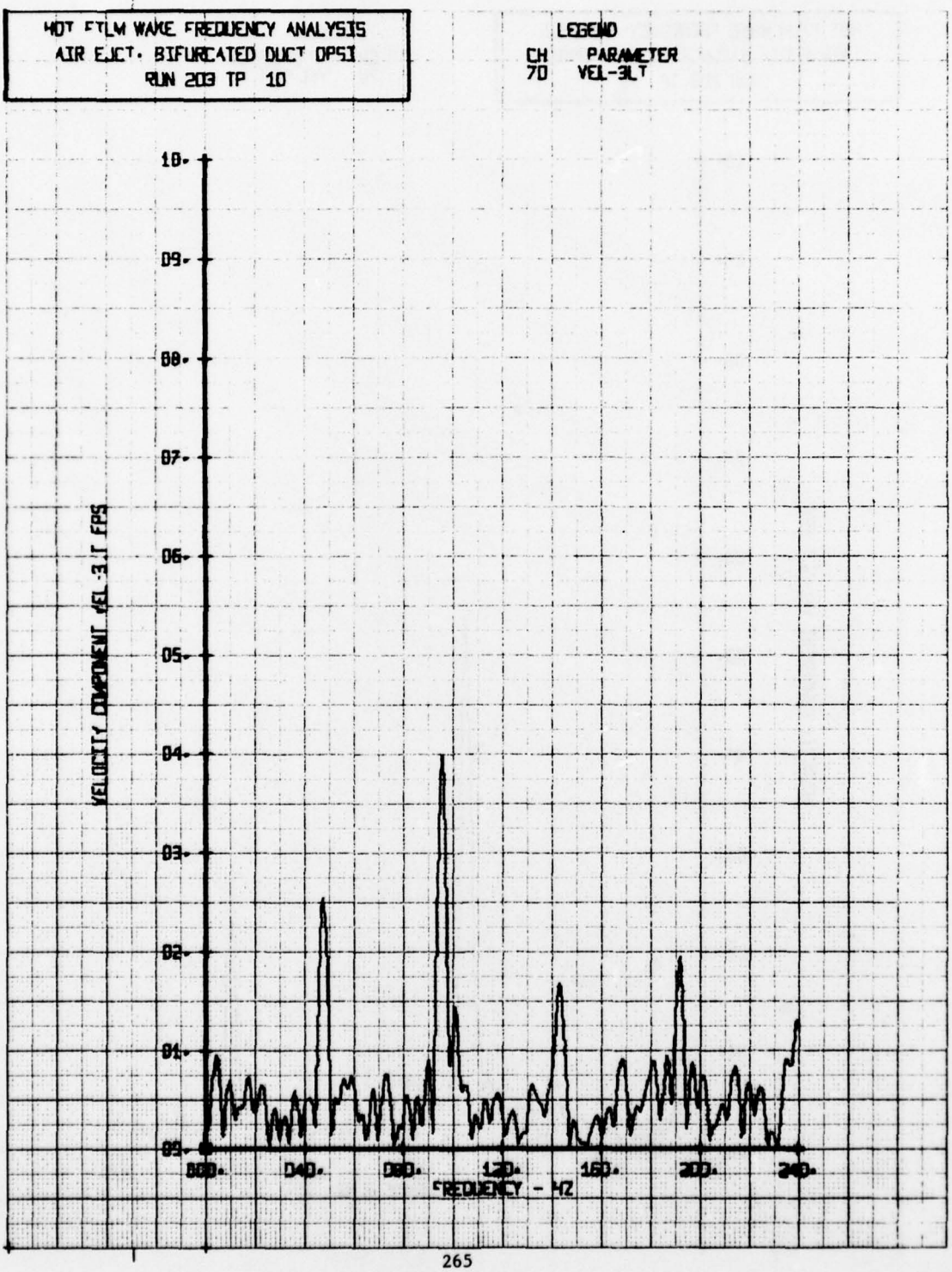
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT DPSI
RUN 203 TP 10
LEGEND
CH PARAMETER
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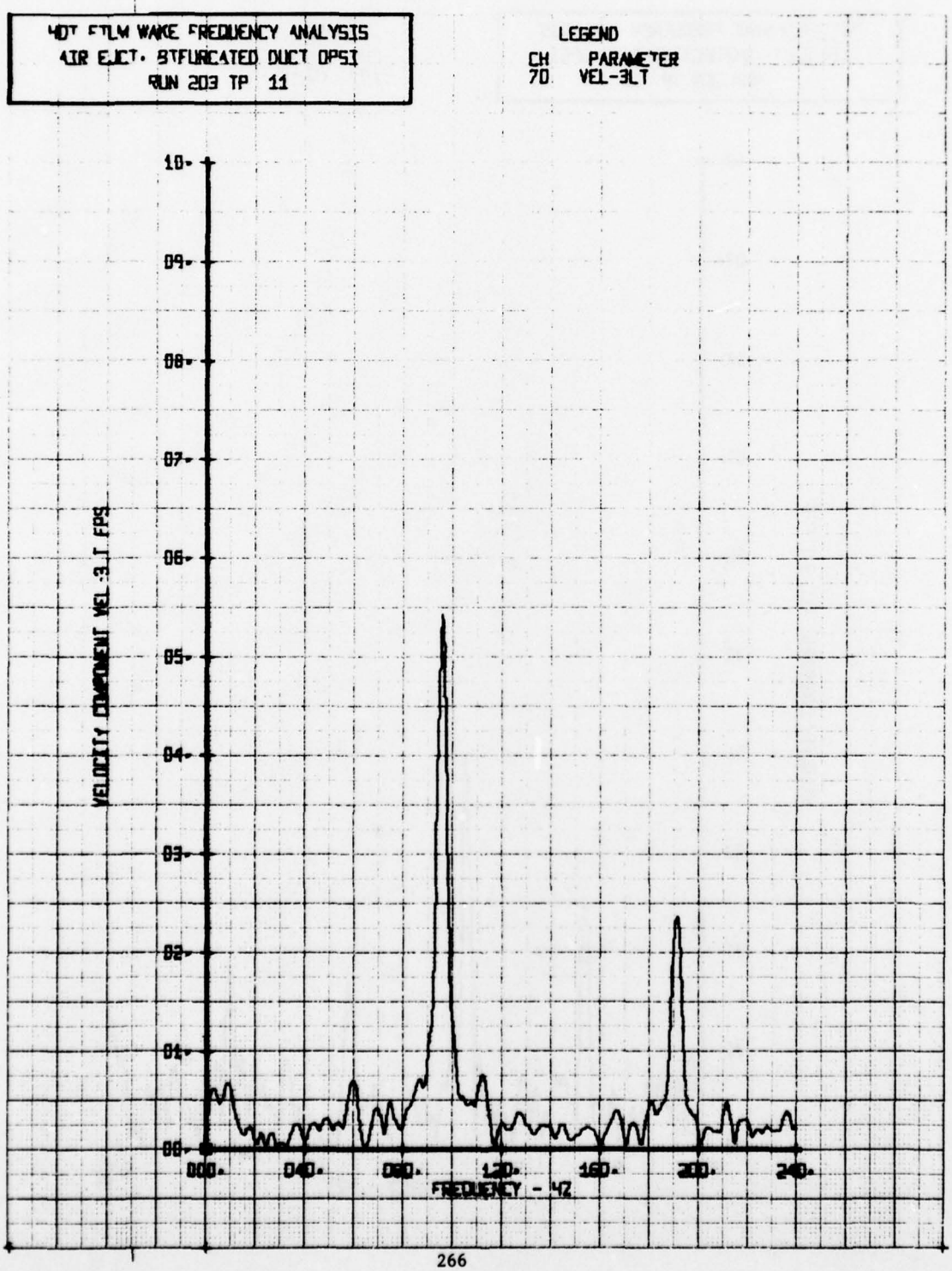
HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT OPSI
RUN 203 TP 11
LEGEND
CH PARAMETER
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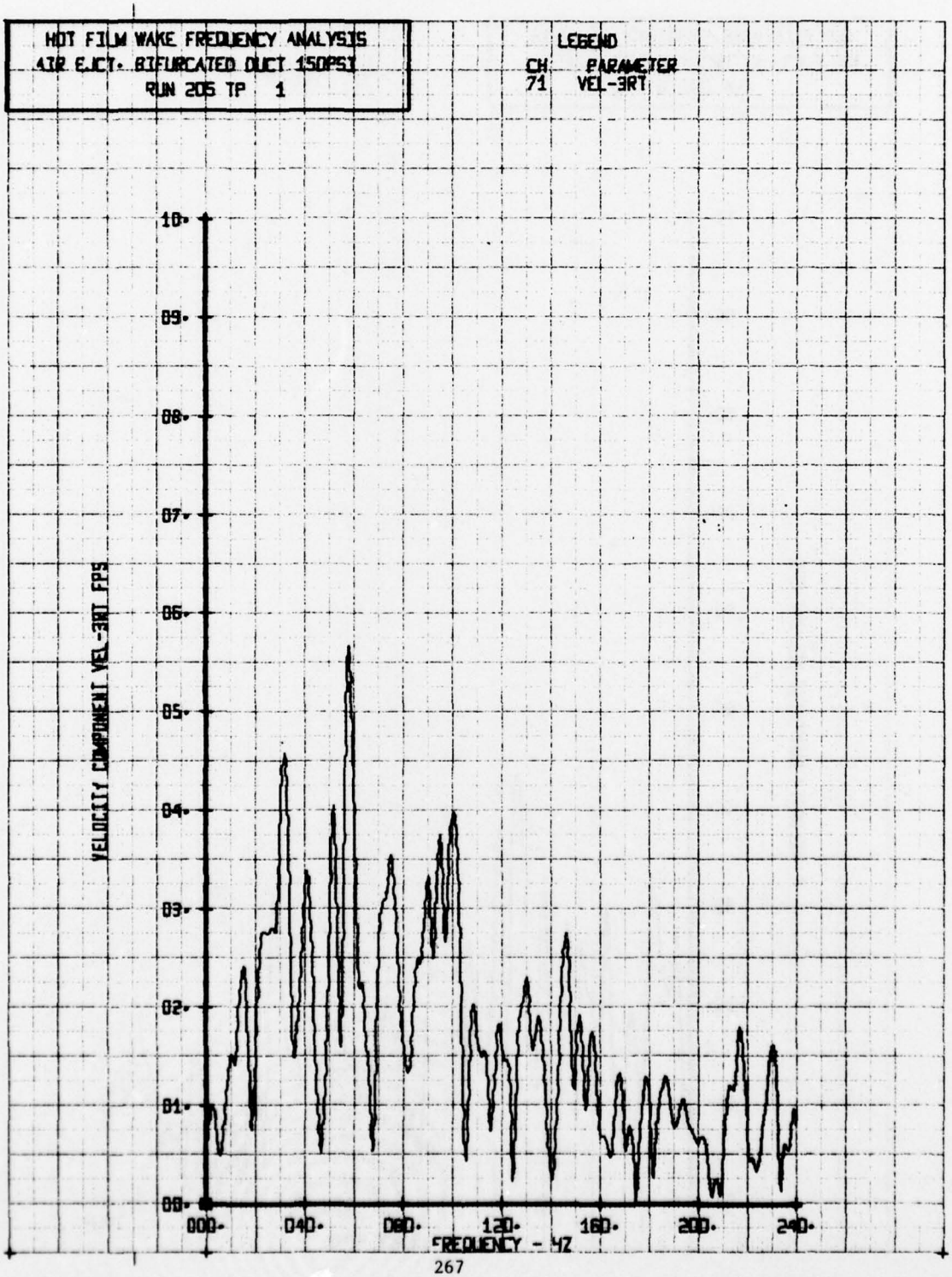
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT 150PSI
RUN 205 TP 1
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VEL-3RT FPS
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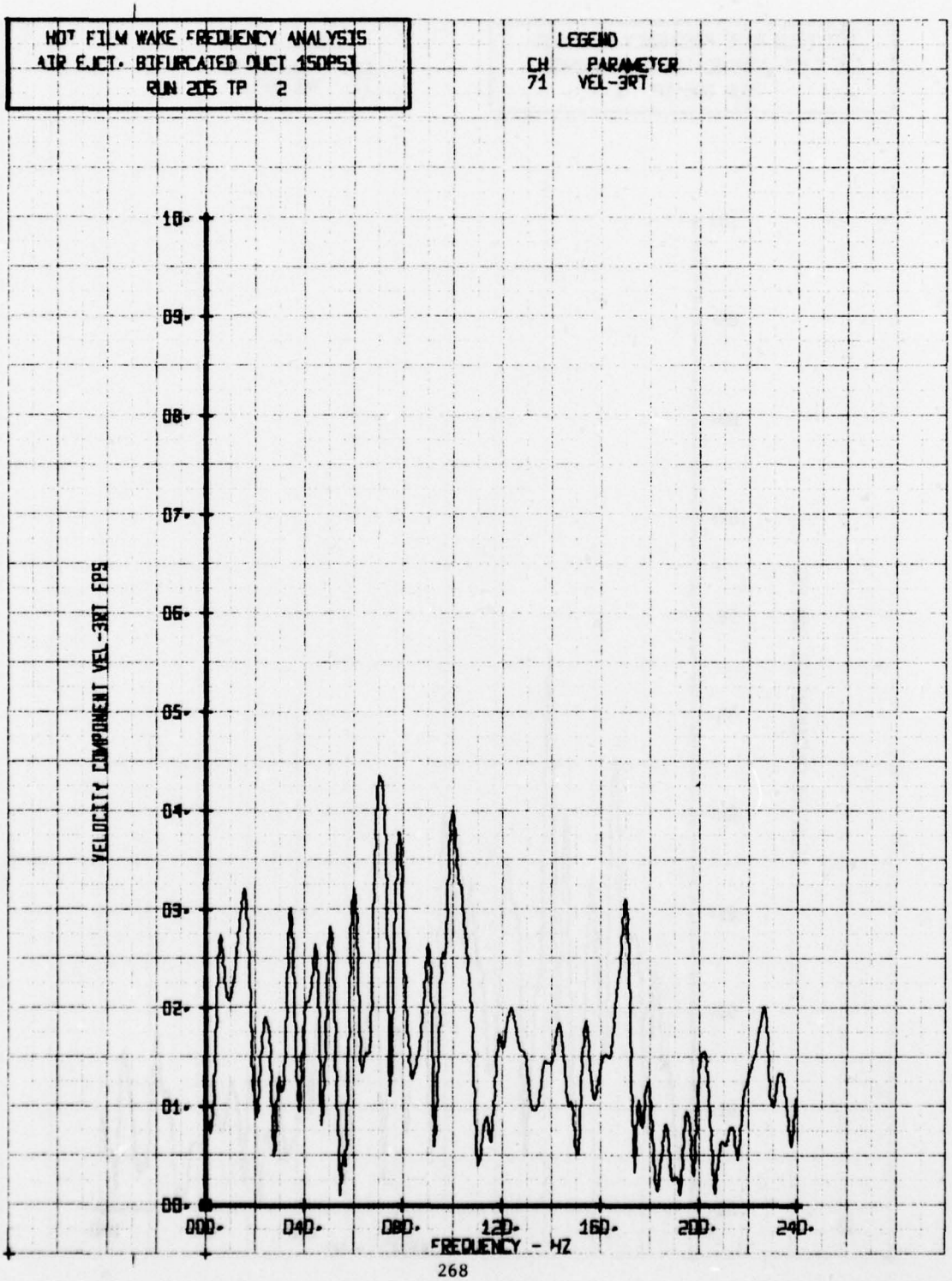
FREQUENCY - HZ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AIR EJCT. BIFURCATED DUCT 150PSI
RUN 205 TP 2
LEGEND
CH PARAMETER
71 VEL-3RT
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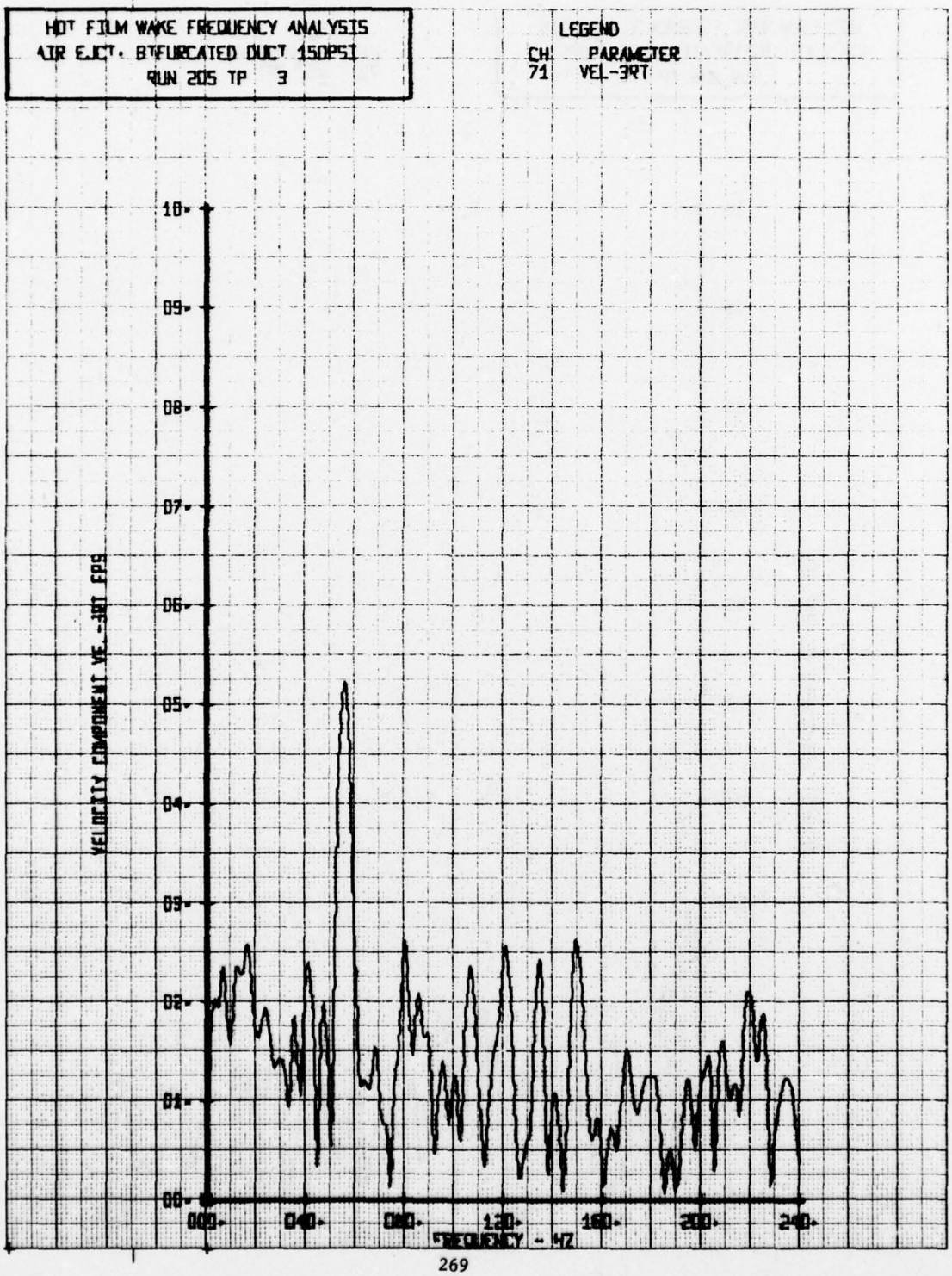
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT 150PSI
RUN 205 TP 3
LEGEND
CH. PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VE.-3RT FPS
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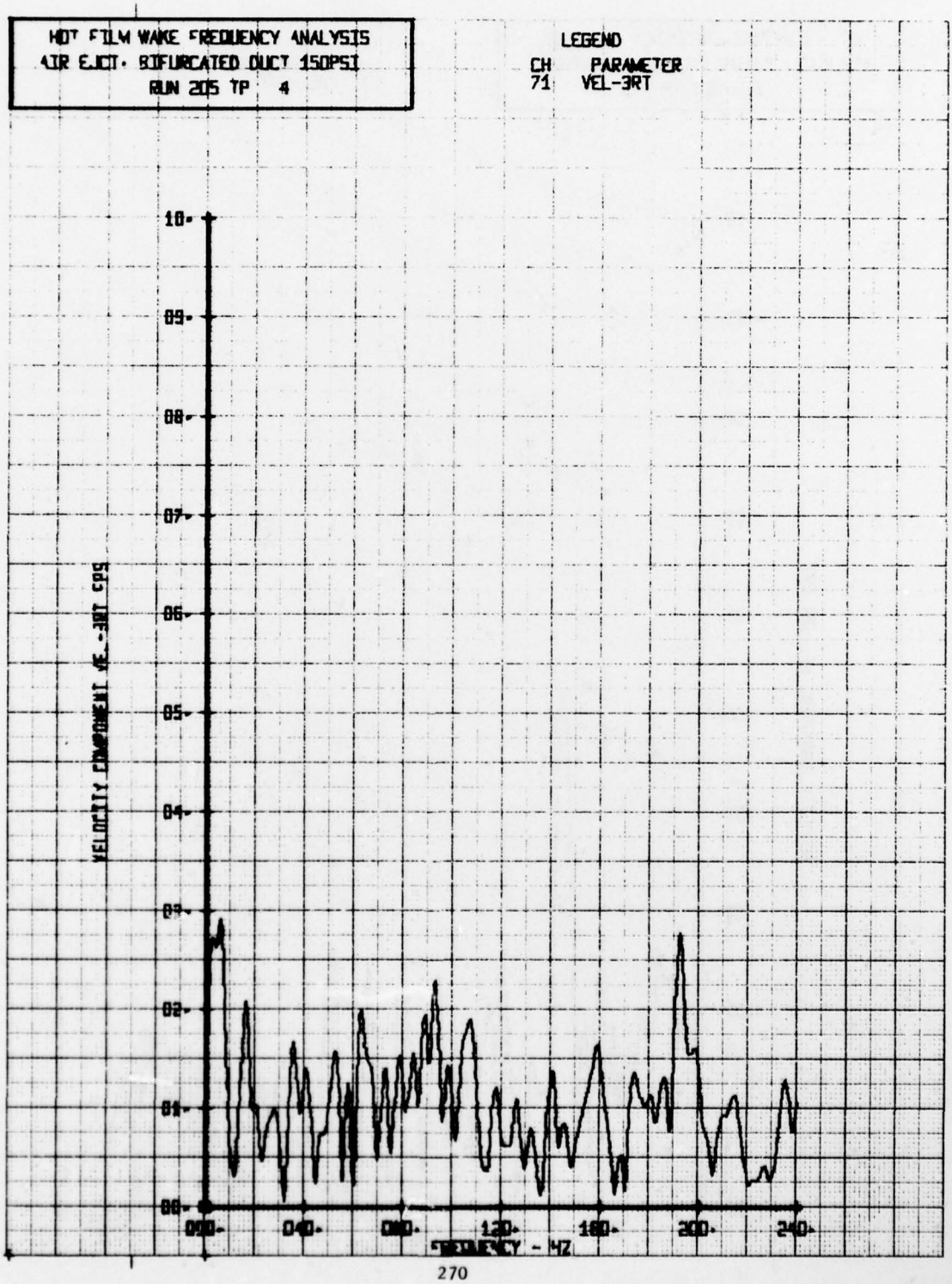
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT 150PSI
RUN 205 TP 4
LEGEND
CH PARAMETER
71 VEL-3RT
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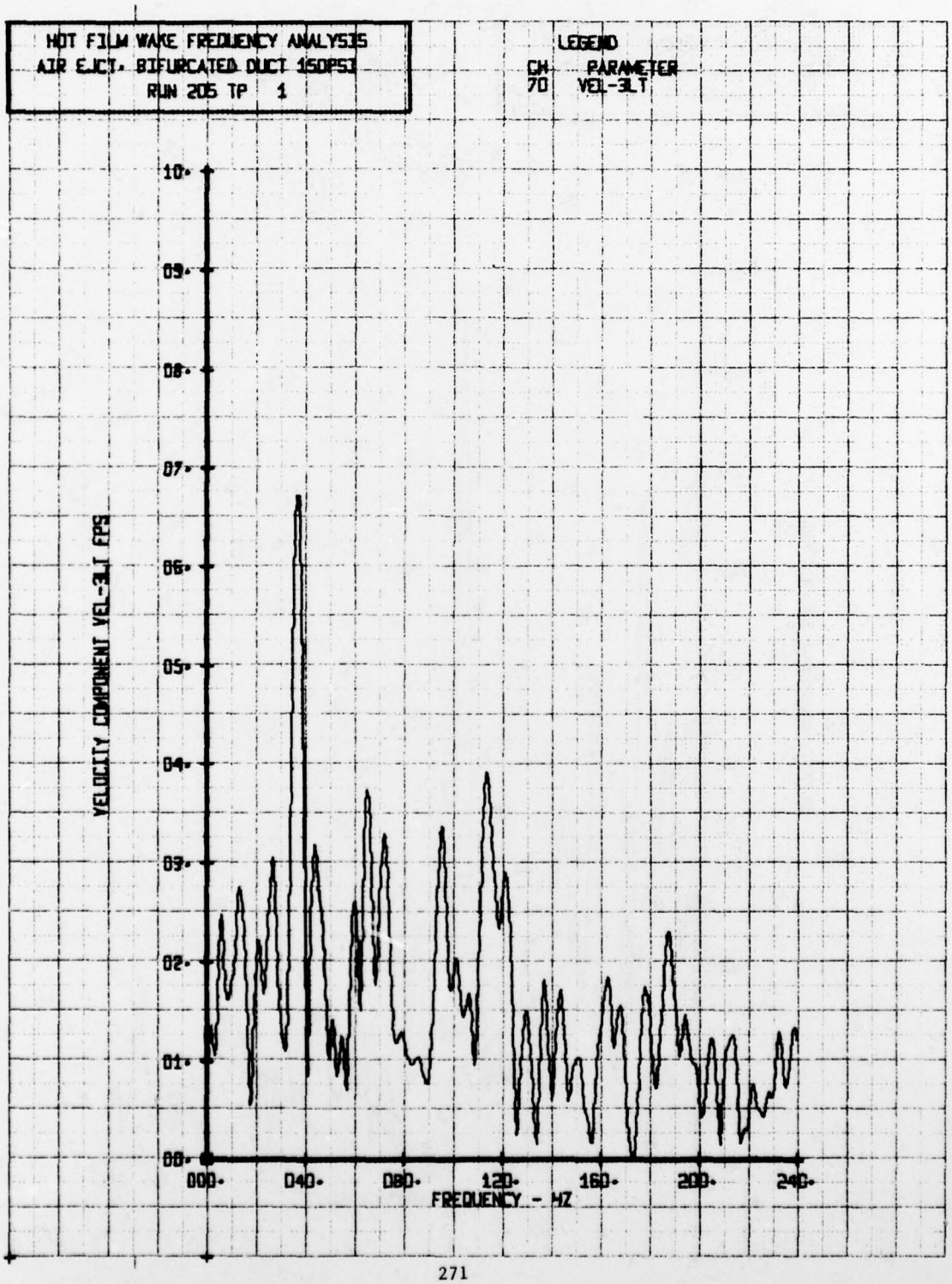
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT 150PSI
RUN 205 TP 1
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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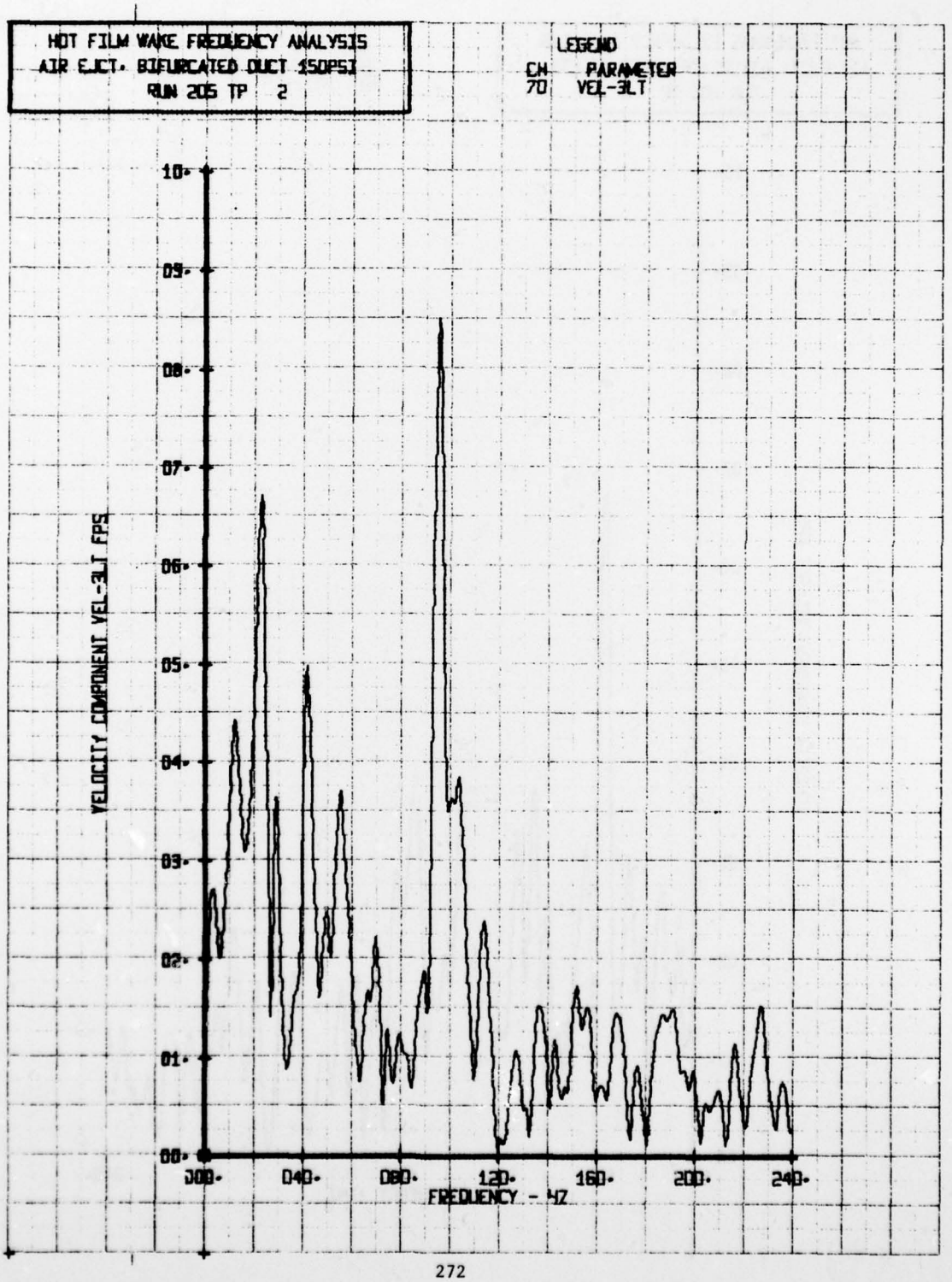
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT 150PSI
RUN 205 TP 2
LEGEND
CH PARAMETER
70 VEL-3LT
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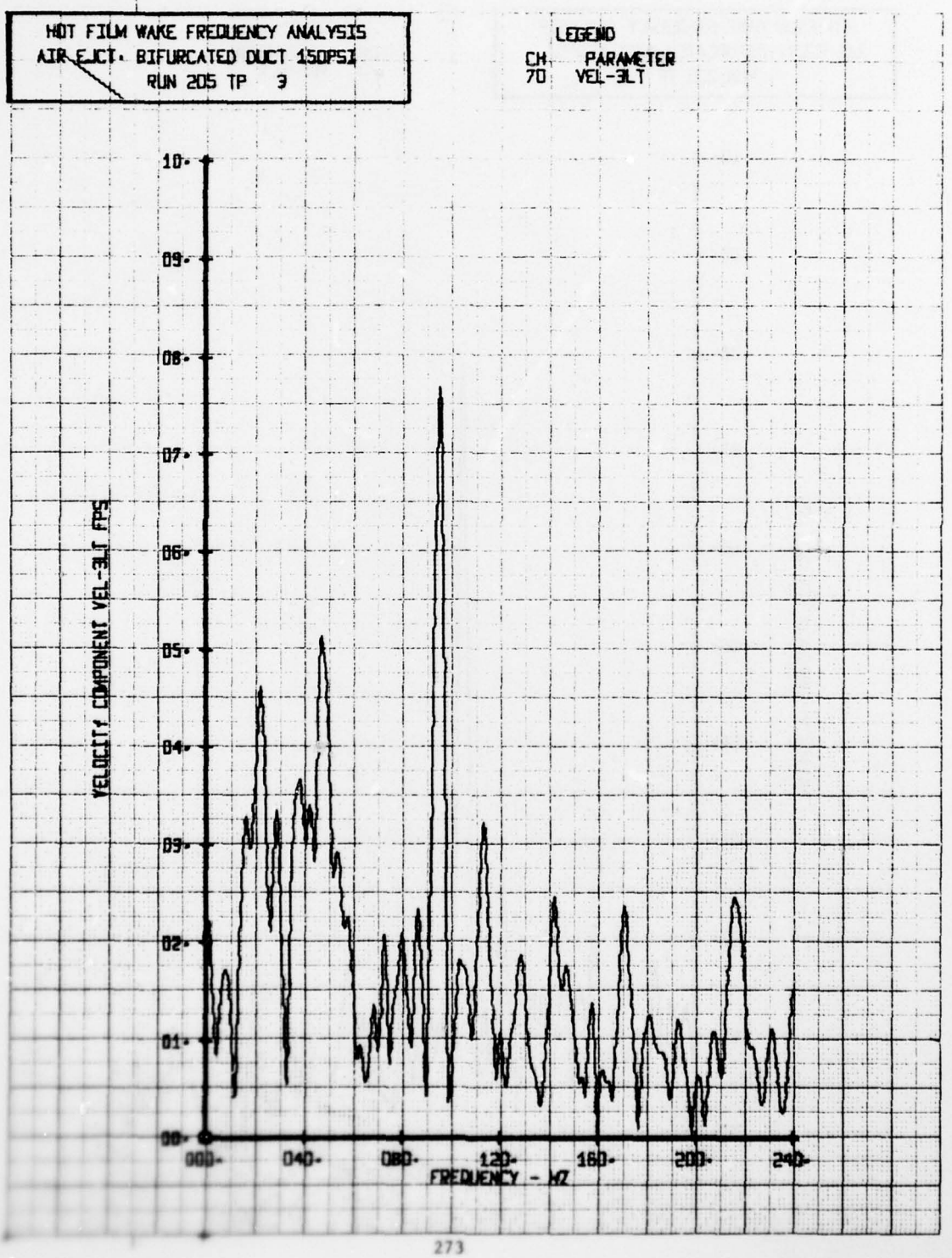
FREQUENCY - HZ


HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT 150PSI
RUN 205 TP 3
LEGEND
CH. PARAMETER
70 VEL-3LT
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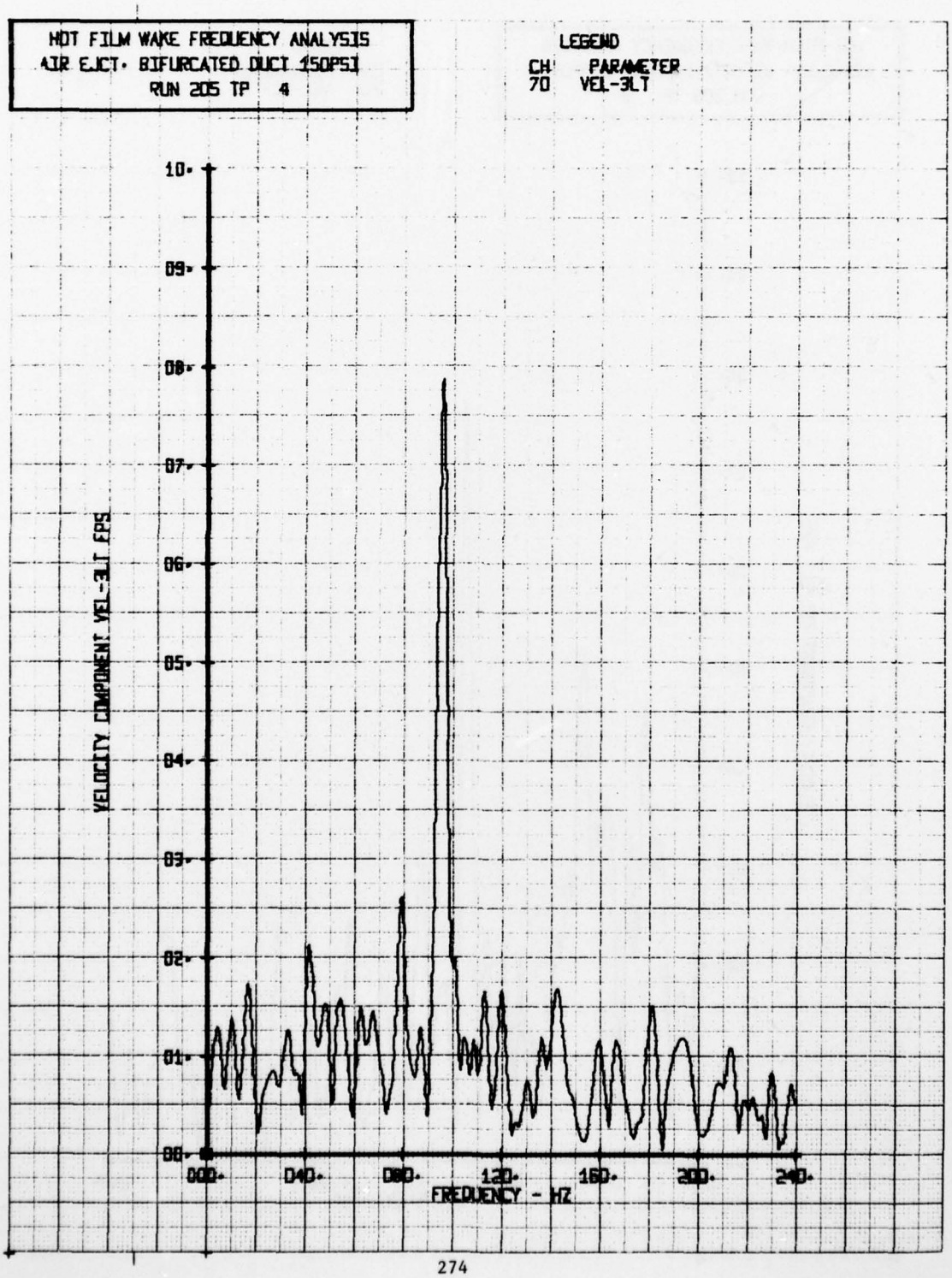
HOT FILM WAKE FREQUENCY ANALYSIS
AIR EJCT. BIFURCATED DUCT 150PSI
RUN 205 TP 4
LEGEND
CH PARAMETER
70 VEL-3LT
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VELOCITY COMPONENT VEL-3LT FPS
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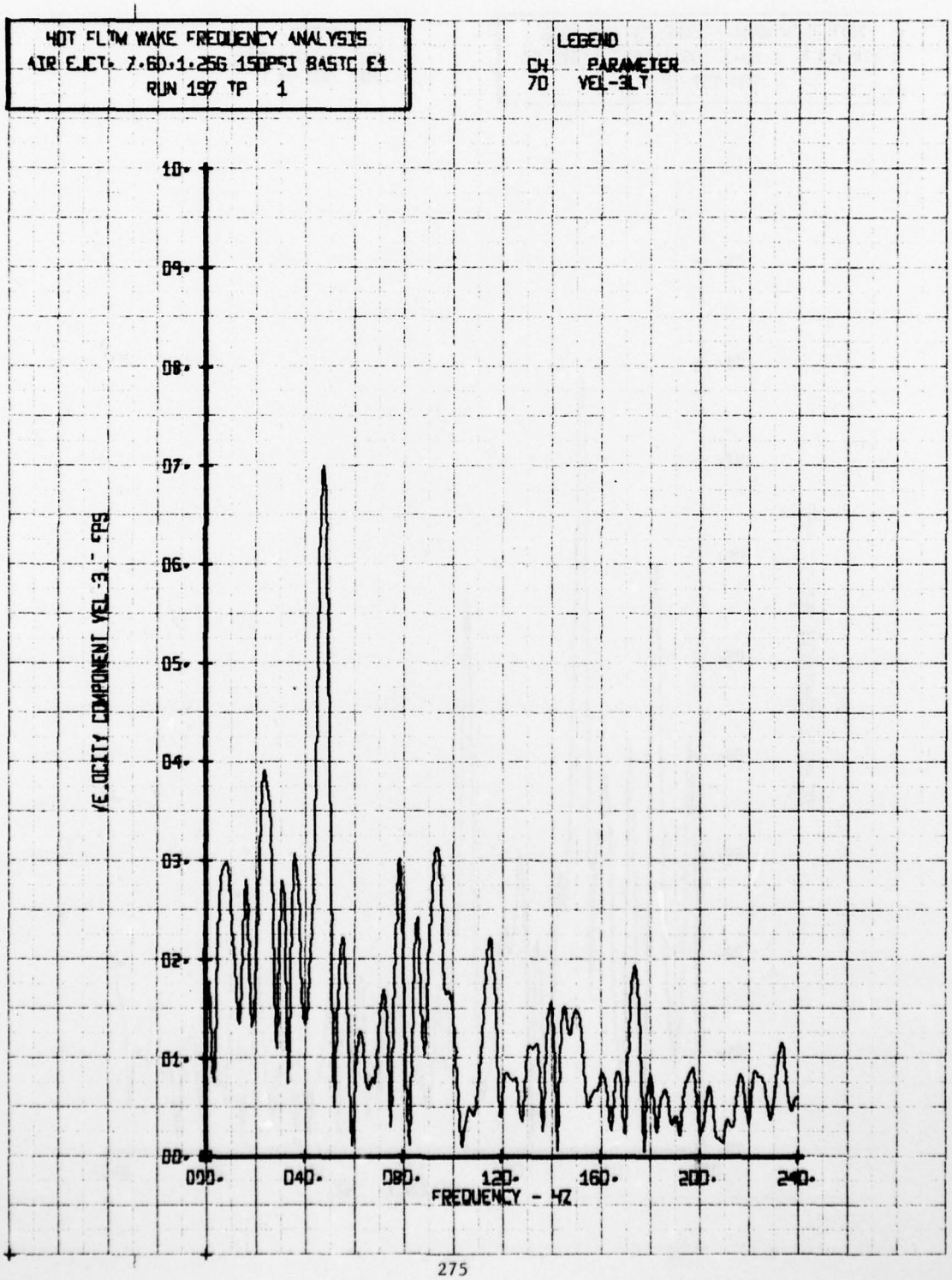
FREQUENCY - HZ


HOT FLOW WAKE FREQUENCY ANALYSIS
AIR EJCTR 7.60.1.256 150PSI BASIC E1
RUN 197 TP 1
LEGEND
CH PARAMETER
7D VEL-3LT
VELOCITY COMPONENT VEL-3 - FPS
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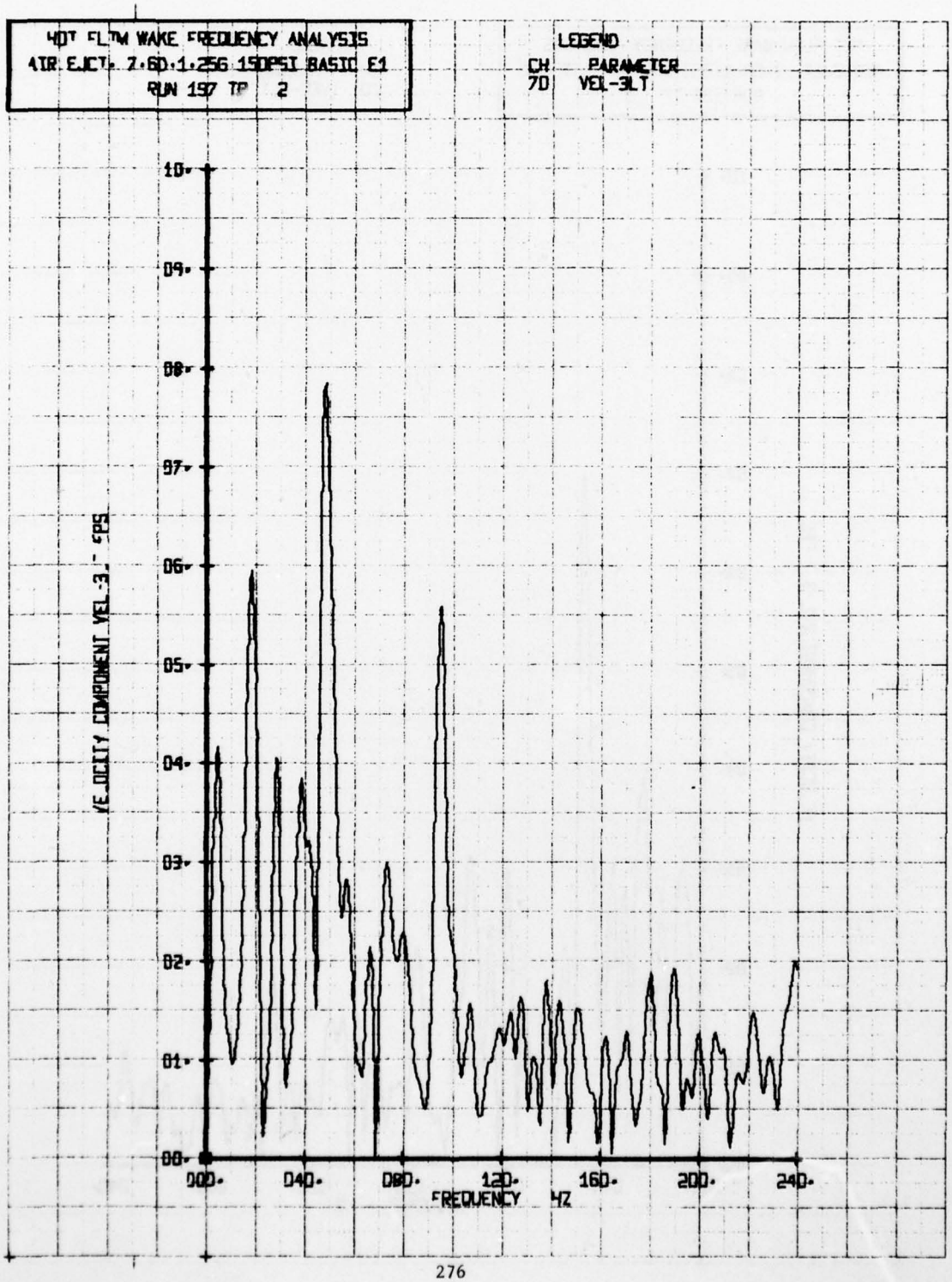
FREQUENCY - HZ


HOT FLOW WAKE FREQUENCY ANALYSIS
AIR EJCT. 2.60.1.256 150PSI BASIC E1
RUN 157 TP 2
LEGEND
CH PARAMETER
7D VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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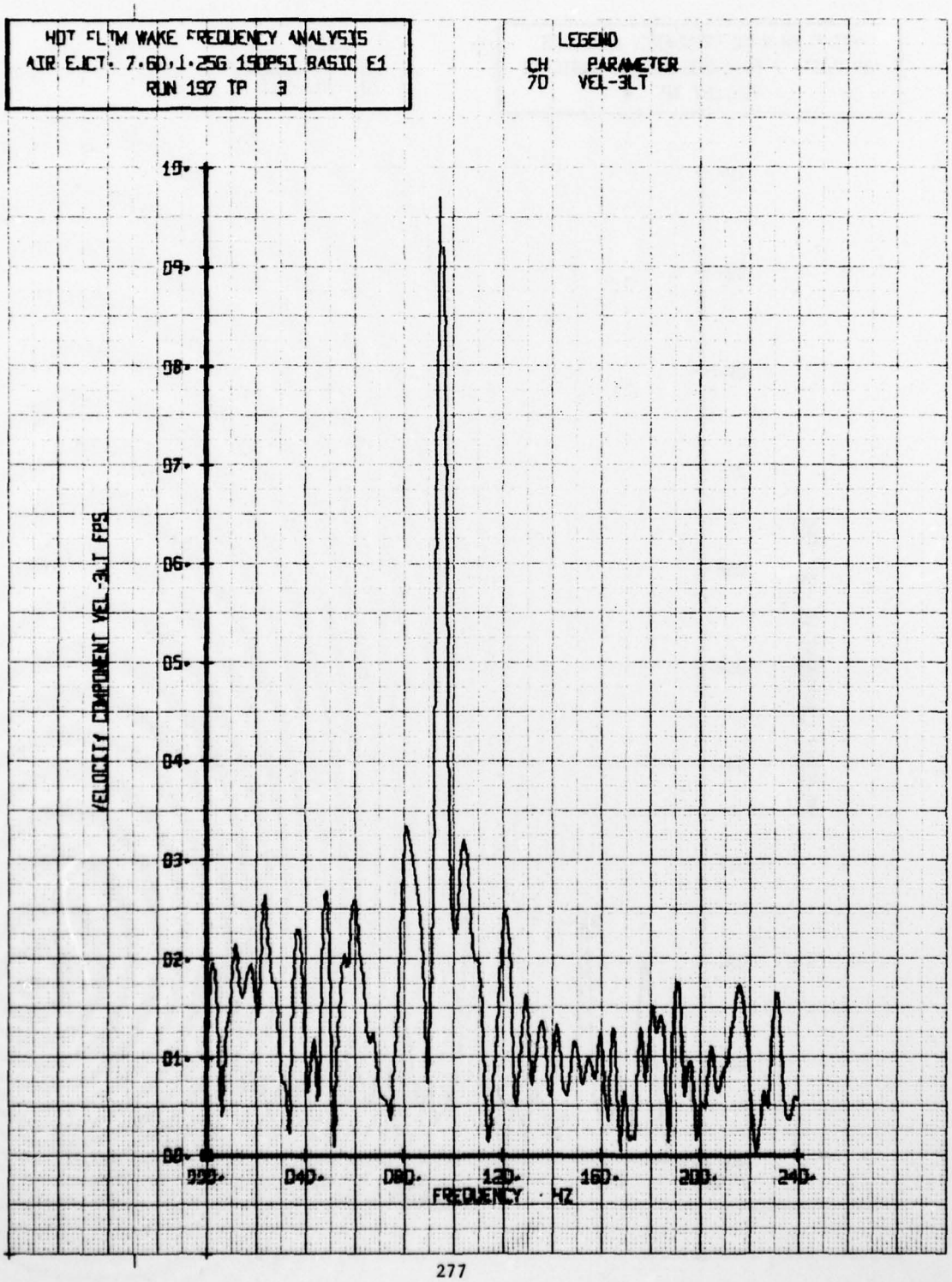
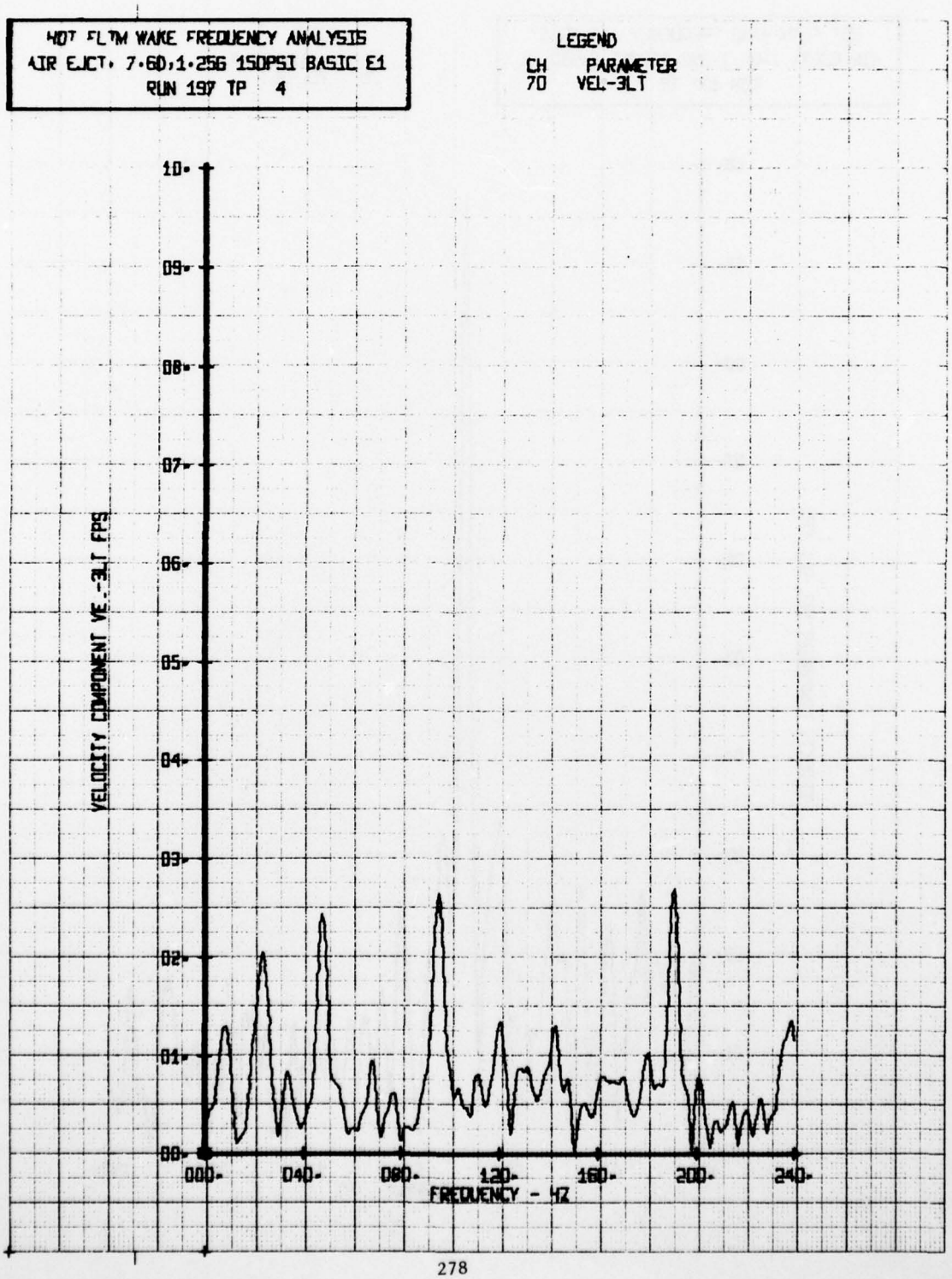
FREQUENCY HZ


HOT FLTM WAKE FREQUENCY ANALYSIS
AIR EJCT. 7.6D,1.25G 150PSI BASIC E1
RUN 197 TP 3
LEGEND
CH PARAMETER
7D VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
FREQUENCY HZ


HOT FLTM WAKE FREQUENCY ANALYSIS
AIR EJCT. 7.60;1.256 150PSI BASIC E1
RUN 197 TP 4
LEGEND
CH PARAMETER
70 VEL-3LT
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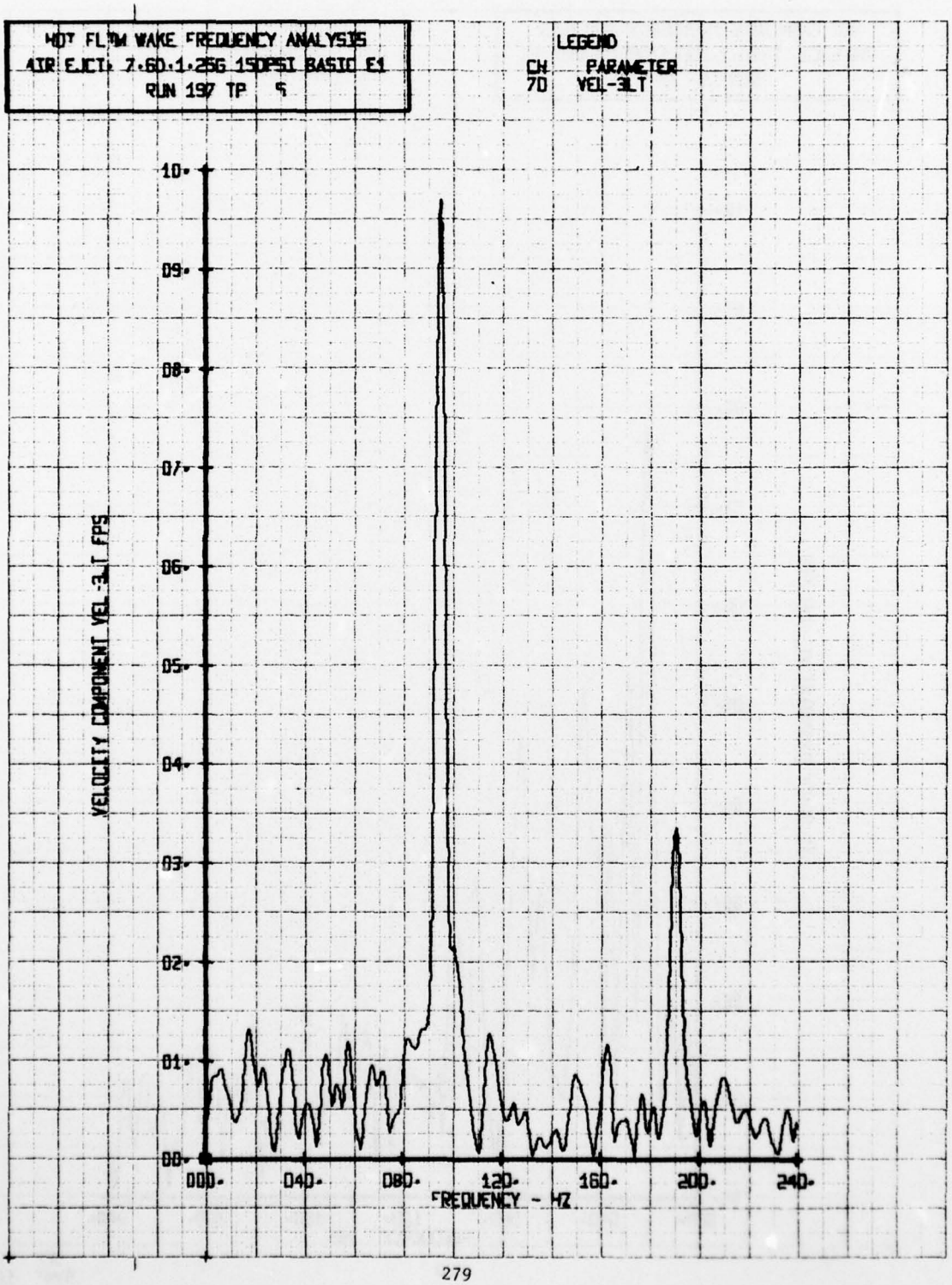
FREQUENCY - HZ


HOT FLOW WAKE FREQUENCY ANALYSIS
AIR EJCT. 2.60-1.25G 150PSI BASIC E1
RUN 197 TP 5
LEGEND
CH PARAMETER
70 VEL-3LT
VELOCITY COMPONENT VEL-3LT FPS
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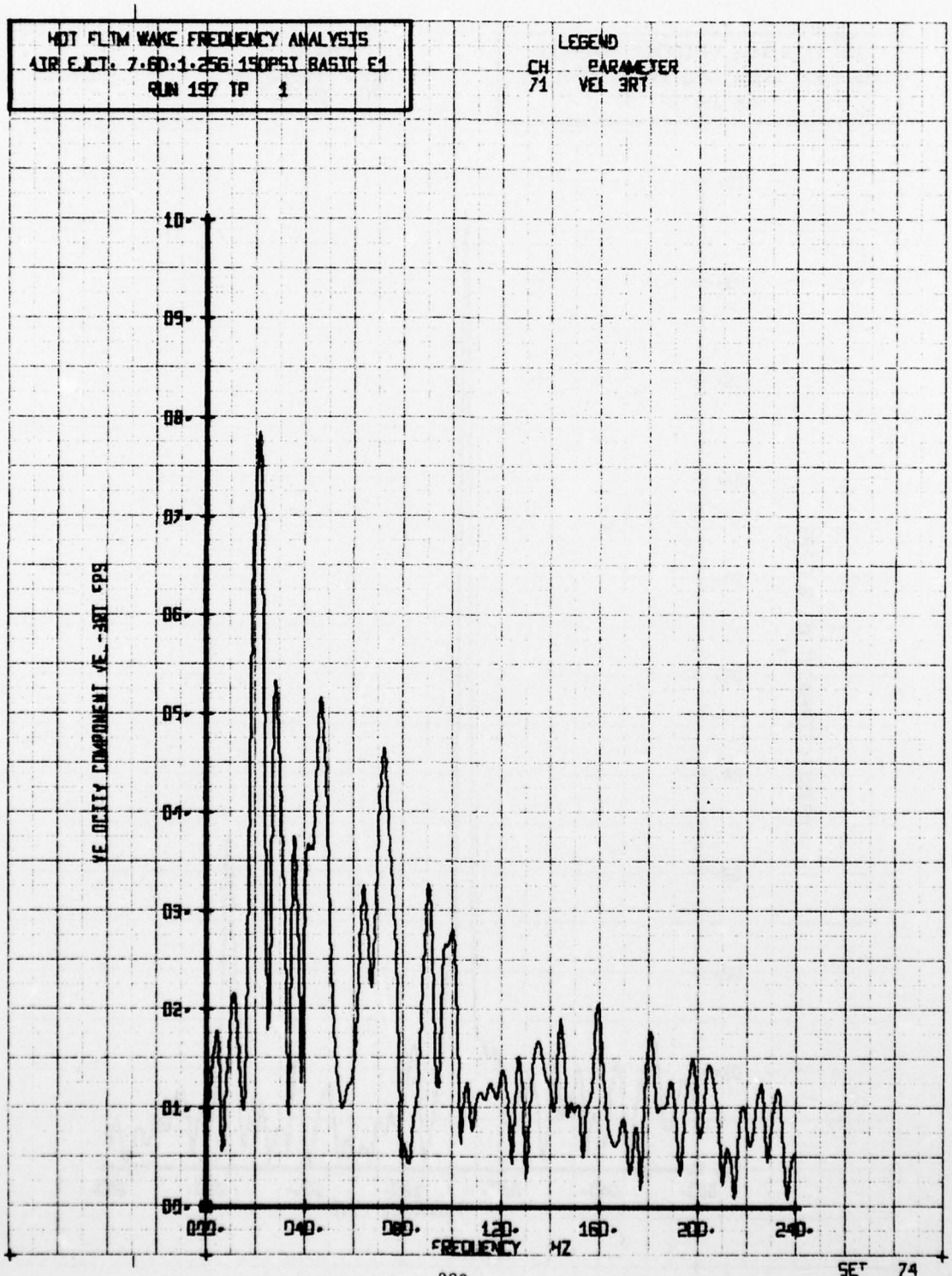
FREQUENCY - HZ


HOT FLTM WAKE FREQUENCY ANALYSIS
AIR EJCT. 7.6D.1.256 150PSI BASIC E1
RUN 197 TP 1
LEGEND
CH PARAMETER
71 VEL 3RT
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FREQUENCY HZ
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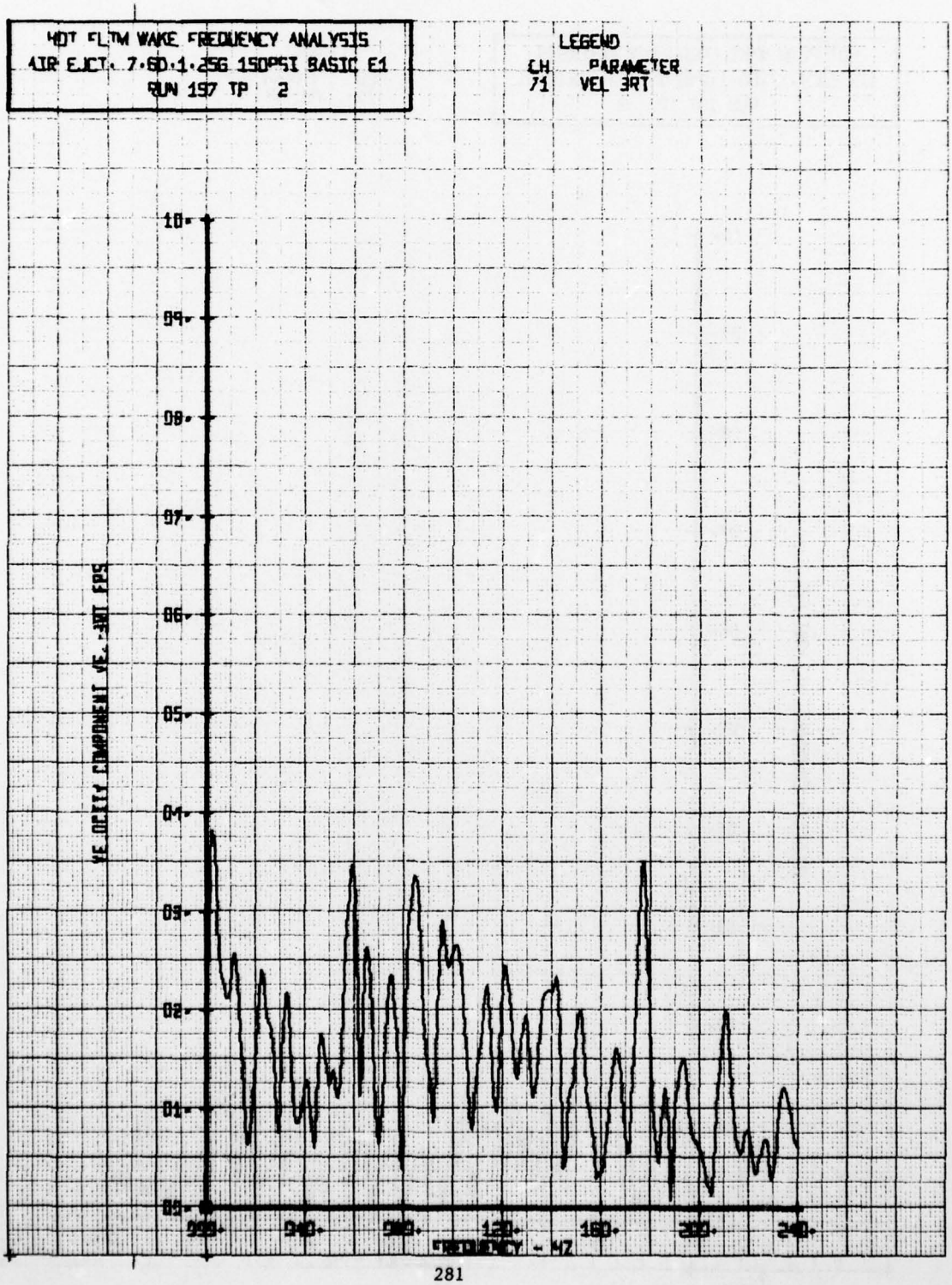
SVWT 169


HOT FLOW WAKE FREQUENCY ANALYSIS
AIR EJCT. 7.60.1.256 150PSI BASIC E1
RUN 197 TP 2
LEGEND
CH PARAMETER
71 VEL 3RT
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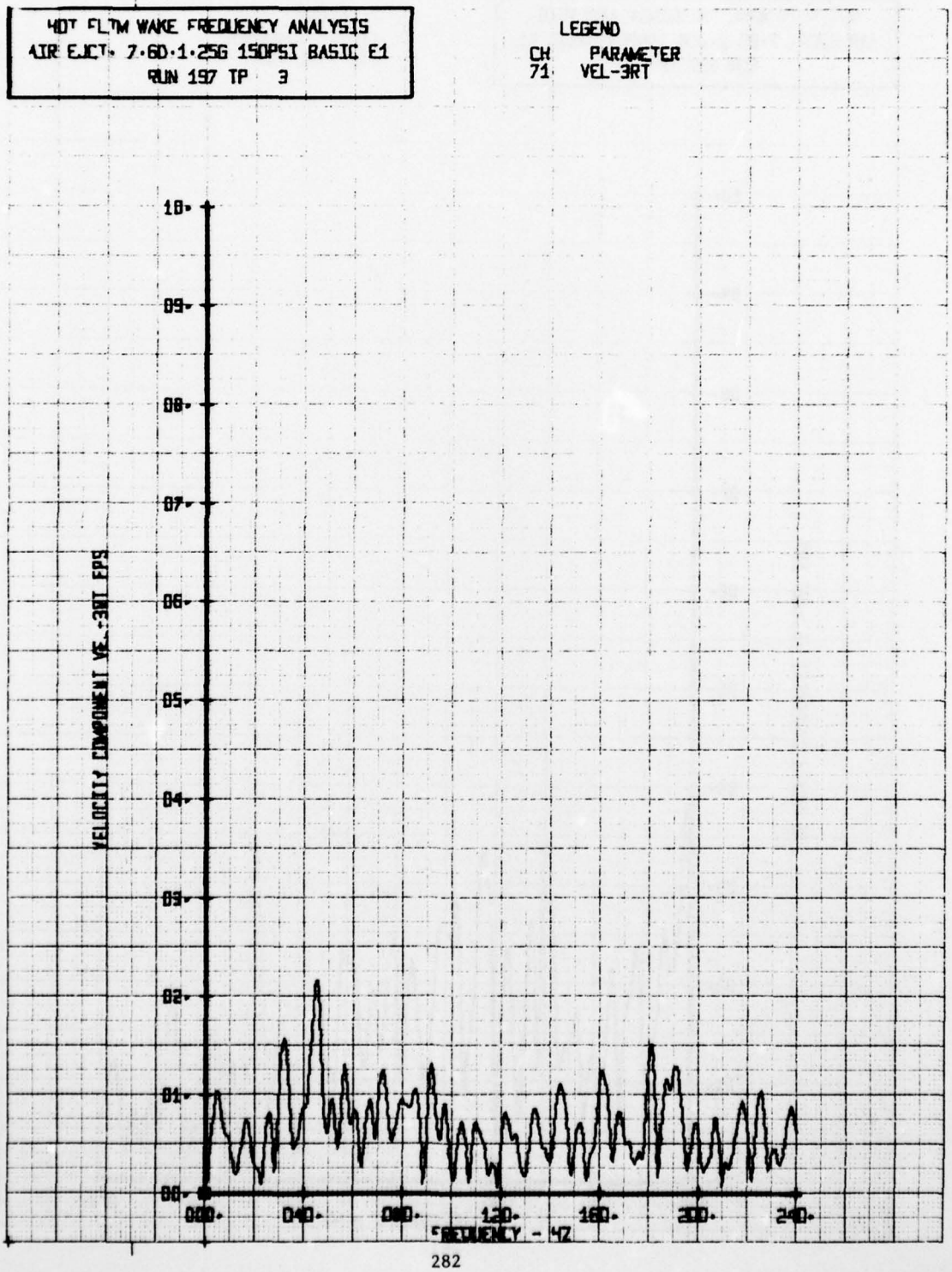
VELOCITY COMPONENT VE. 3RT FPS
FREQUENCY - HZ


HOT FLTM WAKE FREQUENCY ANALYSIS
AIR EJCT. 7.6D.1.25G 150PSI BASIC E1
RUN 197 TP 3
LEGEND
CH PARAMETER
71 VEL-3RT
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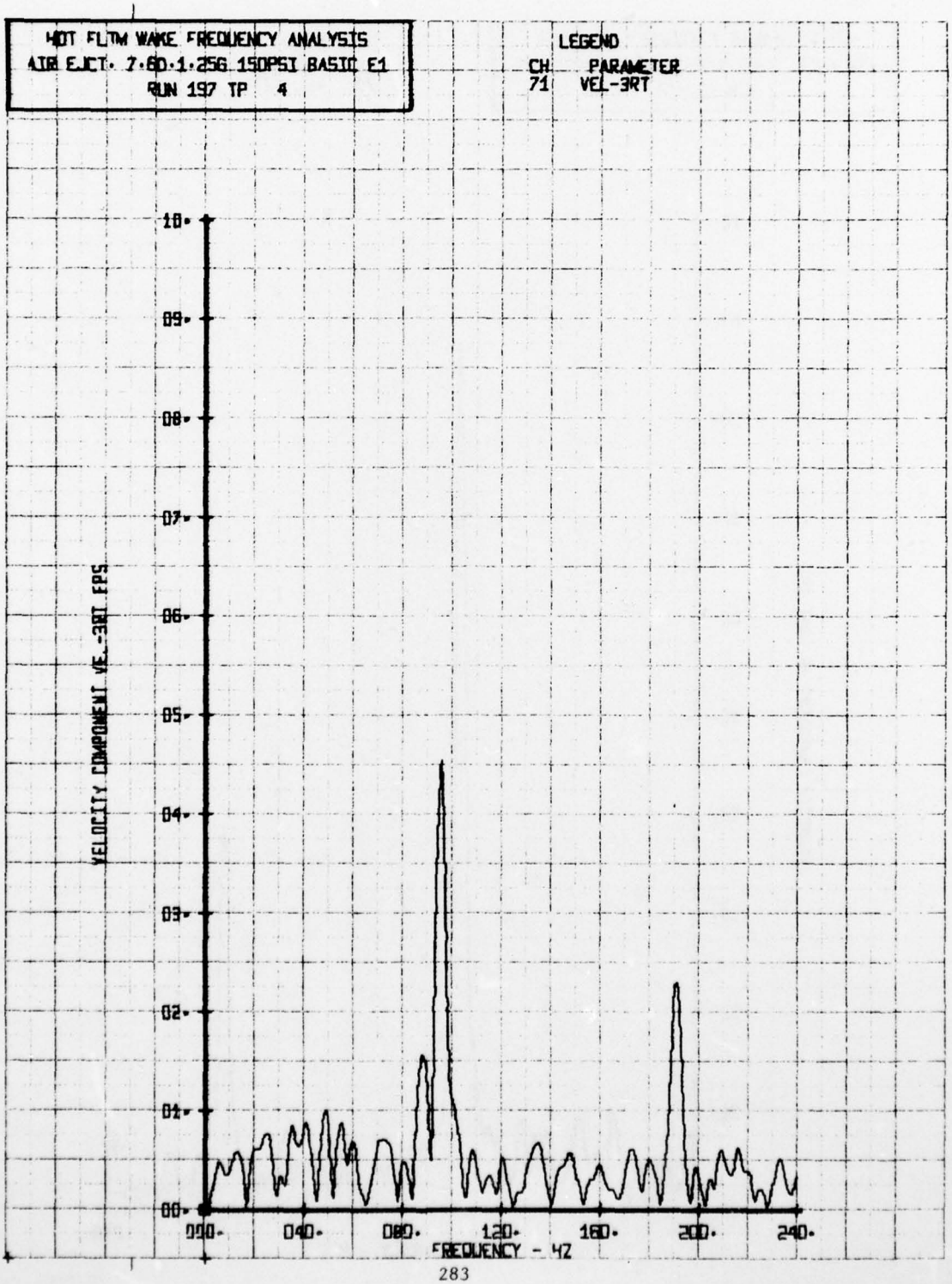
HOT FLOW WAKE FREQUENCY ANALYSIS
AIR EJCT. 7.6D.1.25G.150PSI BASIC E1
RUN 197 TP 4
LEGEND
CH PARAMETER
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VELOCITY COMPONENT VE.-3RT FPS
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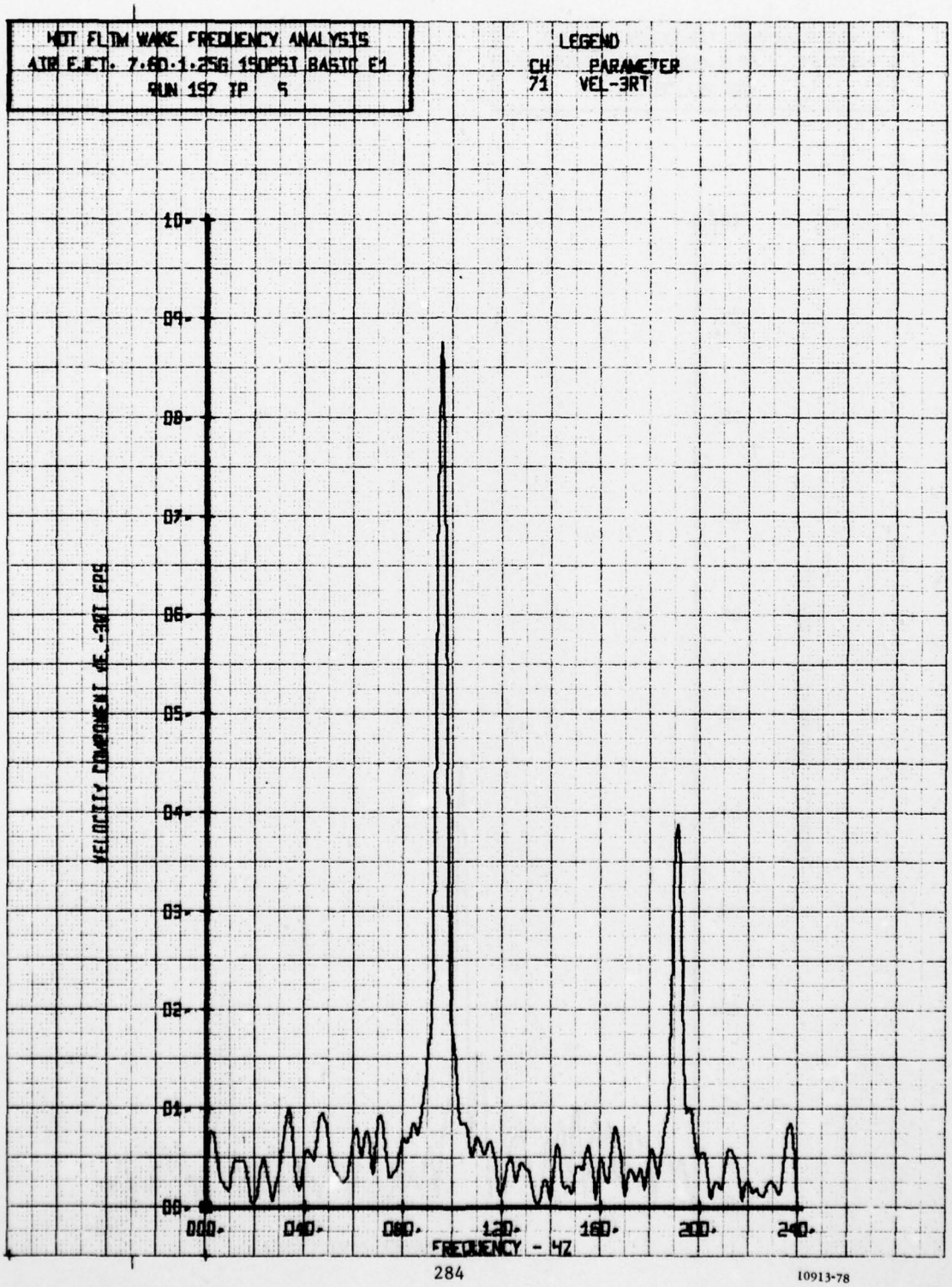
FREQUENCY - HZ


HOT FLTM WAKE FREQUENCY ANALYSIS
AIR EJCT. 7.60-1.256 150PSI BASIC E1
RUN 197 IP 5
LEGEND
CH PARAMETER
71 VEL-3RT
VELOCITY COMPONENT VE-3RT FPS
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